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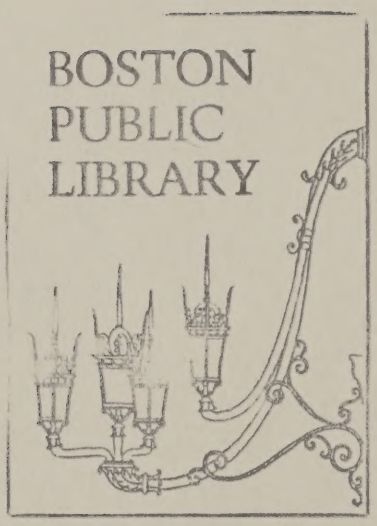
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TAX CONSTRAINT AND FISCAL POLICY: AFTER THE PROPERTY TAX

Volume III - Technical Reports and Background Papers

Final Report of the
Tax Policy Analysis and Planning Study Effort, 1976-81,
Undertaken with the Financial Support of
HUD Research Grant H-2628-RG

Boston Redevelopment Authority
Research Department

September 27, 1983

Kevin H. White, Mayor
City of Boston

Robert J. Ryan, Director
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Alexander Ganz, Research Director
and Tax Policy Study Director

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   - Fourth Report, July 1978, 42 pages

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   - First Report, December 1978, 18 pages
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   The project monitor reports are a step-by-step chronicle of project goals, policy focus, data base development, analytic effort, projection technique evolution, and organizational roles.

2. "Tax Relief and Reform in Massachusetts,: John Avault, Alex Ganz, Daniel M. Holland, published in National Tax Journal, June 1979, Vol. XXXII No. 2, 17 pages.

   This is an abridged version of a paper presented at the Conference on Tax and Expenditure Limitations held at the University of California, Santa Barbara, December 14-15, 1978. The authors examine the then just-adopted state constitutional amendment legalizing property taxation by class (classification) in Massachusetts as an ameliorating measure in the face of court-ordered equalization. Imbalance in a state and local tax structure overly dependent on the property tax is seen as the major problem still demanding solution. Newly developed data base elements and techniques for analysis and projection are used to present estimates of the market value of taxable property, tax burden distortions and dispersion, and shifts under equalization and classification, and the technique of tax capitalization.

3. "Providing Analytic Capacity for Local Urban Policy: The Boston Tax Policy Project," Stephen R. Rosenthal, Professor, Boston University, July 1979, 51 pages.

   Professor Rosenthal's paper is a case study of how the participants and advisors in the Tax Study Project saw their roles and goals and how they interacted in the conduct of the tax study effort. The successes and shortfalls in the design

and carrying out of a complex research effort are carefully dissected.

4. "Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts, by Raymond Torto, prepared for the Massachusetts Mayors' Association, June 14, 1978, 73 pages.

Professor Torto presents Tax Policy Study Project estimates of property tax burden shifts that might result from equalization under full value (100%) and under differential rates of taxation by property class (classification). The rationale for classification (Chapter 580 now replaced by Chapter 797 of Massachusetts state law) flows from the concept of the greater ability to pay for income producing property, on the one hand, and the greater need now to achieve the desired goal of reducing overall reduction of property tax levies through tax reform. Appendices detail the data base and estimation methods.

5. "Reports from 1976 Boston Property Sales; A Technical Report"

Ward summaries of property sales and related computer procedures are presented. These reports were prepared from a computer file building information management system (HMS Sales) using a report generator feature. They consist of descriptive listings of individual sales records, arrayed by Ward. Reports were prepared by Charles Westfield and Frances Larson.

6. "Graphic histograms and related summary statistics of Boston residential property sales, by ward and property type; A Technical Report with the acronym HIST".

Within each of Boston's twenty-two wards and for the City as a whole, HIST describes property sales for each of eight property types whenever at least five valid and complete arms length market sales occurred. Histogram graphs detail the distributions of both sales prices and assessment/sales ratios, showing the number and percent of properties in each of five magnitude categories. The middle category is centered about the sample mean and the inner three categories each have a range of twenty percent of the sample mean value so that all distributions are uniformly portrayed in terms of the Coefficient of Dispersion about the Mean. The two outer categories are open ended. The following measures are printed for each of sales price, assessed value, and assessment/sales ratio: range, mean, standard deviation as well as the Coefficient of Dispersion about the Median. HIST processes data from the HMS Sales structured file. HIST was designed by John Avault and written by Karl Sittler in the PL1 language.

7. "Property Tax Equalization Simulations for Boston and All Other Massachusetts Cities and Towns; MASSTAX, A Technical Report".

The effects of 100% valuation and classification are estimated, both before and after equilibrium tax capitalization. Taxes and values are reported as parcel averages for ten types of taxable property in each of 344 cities and towns. For Boston and summaries of four population groups and the state, the results are reported as both parcel averages and dollar totals. All simulations are performed "as if" equalization occurred for the fiscal year 1978. These simulations for Boston and all other cities and towns played an important role in the 1978 election year debate over the classification enabling amendment, to the State Constitution, which was adopted. This output is from a computer program (MASSTAX 2) designed by John Avault and written by Karl Sittler in the PL1 language.

1. Eight "Monitor Reports" by Tax Study Project Monitor, Joseph Slavet.

Preliminary(First) Monitoring Report
Tax Policy Analysis and Planning Study

Introduction

This first monitoring report is designed to coincide with target dates in the original work schedule for completion of the preliminary phase and most of Phase I of the project work program--the selection and programming of model inputs. Thus the description of project activities and events covers (1) the start-up and organizational period from January through mid-April, 1977 and (2) the subsequent period through June 30, 1977 in which the staff's central concern was to develop the required data base and the anlytical model.

During the preliminary phase, agreements were negotiated between BRA project management and HUD program representatives for a shift in project focus and strategy. Budget and staff revisions reflecting these agreements were carried out and consultant contracts were executed. The most significant event of this start-up period was to redirect the central thrust of the project away from the so-called Cooper-Weinberg DYNAMO model toward a tax policy planning and analytical process. The consensus of key actors in the project and of responsible HUD officials, a view ratified by the academic consultants, was that the

shift in project strategy was more appropriate to the needs and priorities of City decision-makers in tax and fiscal policy. Of particular concern to HUD's Government Technical Representative was the (1) the proposed computer language (DYNAMO) was not compatible with the City's existing computer capability, and (2) the use of DYNAMO cast doubt on the replicability potential of the project since few public jurisdictions, like Boston, had the capability to use such computer language.[1]

Also covered by this preliminary report is a description of progress made in achieving the following objectives derived from major tasks identified in the revised work schedule for Phase I: (1) development of the data base; (2) development of the analytical model; (3) review by Academic Consultants and City Policy Committee of data needs, resources and data base outputs; (4) the organization and convening of panel sessions; (5) expansion of the data base; and (6) expansion of the analytic model.[2]

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[1]Letter of February 23, 1977 from Michael F. Schneider, GTA, to Alexander Ganz.

[2]From "Work Schedule Chart for Tax Policy Study", April 12, 1977, by John Avault, Principal Research Analyst.

Preliminary observations are made in this report about the project's organizational structure, communication flow and management system, including comments about the impact of these factors on the tax policy/analytical process. Finally, expectations for the project articulated by the project actors are identified as check-points for subsequent monitoring reports.

Sources of data used in preparing this monitoring report are: (1) original and revised project proposals, including explanatory memoranda and related correspondence; (2) reports from project staff to project director and from project director to BRA director on project status and progress; (3) documents prepared for meetings of City Policy Committee and Academic Policy Committee and distributed to participants therein; (4) observation and recording of dialogues at meetings of project staff, City Policy Committee and Academic Policy Committee attended by the monitor; and (5) monitor interviews with project principals conducted during June, 1977.

Since full-scale operations of the project were not under way until early April, 1977, when negotiations for revision of project goals and emphasis were finally completed, the prevailing assumption of project management and staff is that the 12-month effort, originally scheduled to run from January through December, 1977, is now based

on an April, 1977 to March, 1978 operating period.

Finally, the shift in project direction and strategy to development of a prototype tax policy planning and analysis model that may be useful to other cities dictated the articulation of a revised project goals:

> .....to develop measures of the impact of assessment revaluation and tax policy alternatives on tax burdens, property values, owner equity, property turnover, property maintenance and quality, the potential for abandonment, private investment in existing and new properties, property tax revenue and rates, and business activity.[3]

This fundamental shift in the statement of a project goal also necessitated changes in the nature and scope of the project design itself:

> .....the revised study design will focus principally on the analysis of the principal tax alternatives, their impacts and burden shifts, their role in broadening the City's revenue base and reducing the role of the property tax, and the potential for lessening the impact of revaluation on home-owners, renters and other property owners.
>
> A key aspect of the study centers in testing alternative ways of reducing property tax levies, in terms of assessments and rates, to achieve reduction of disparities while lessening disincentives for residential investment.[4]

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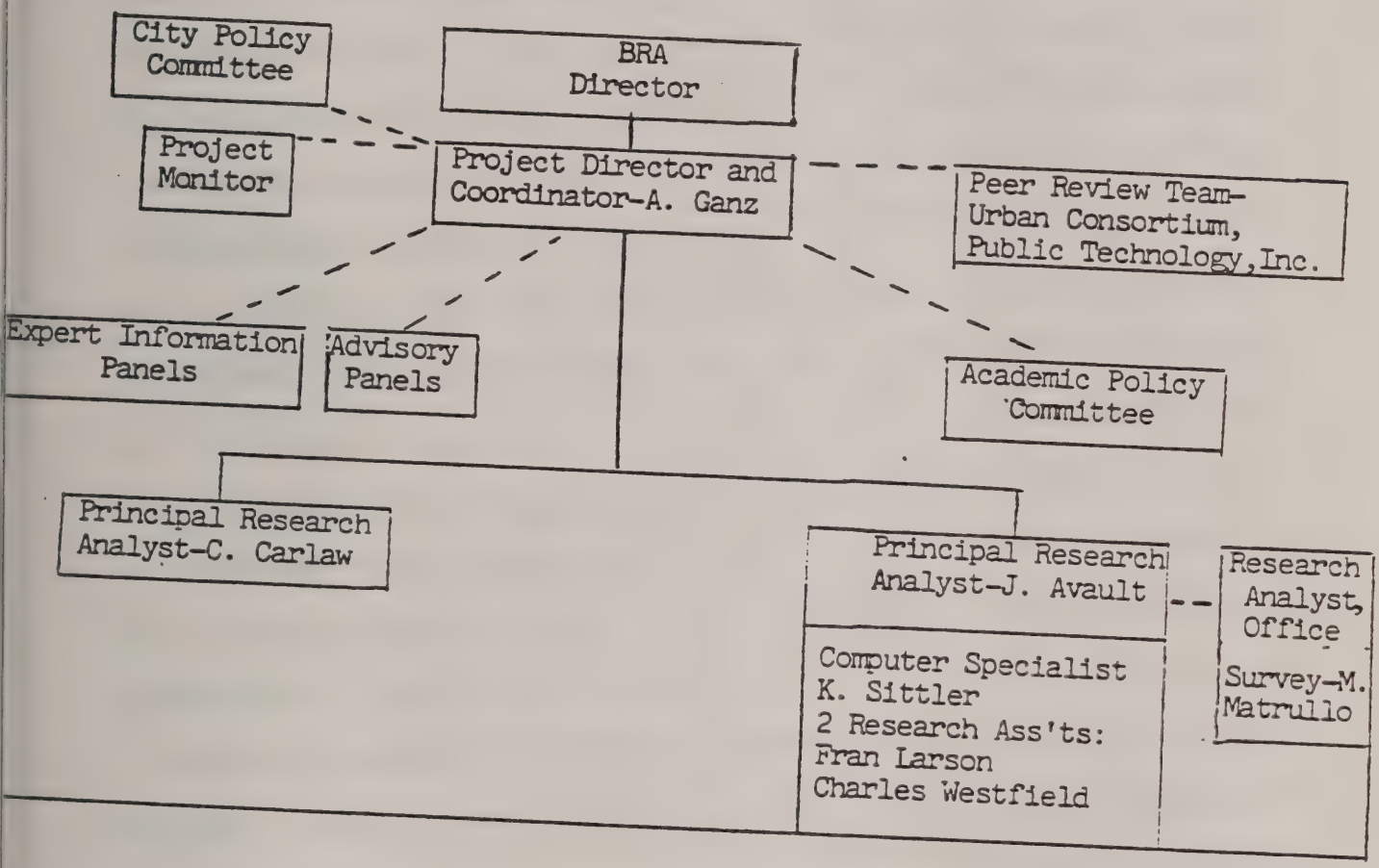
[3] Research Department, BRA, "A Prototype Effort in City Tax Policy-Analysis and Planning: The Boston Case", Revised Study Focus, with HUD Research Grant H-2628-RG, April, 1977, p.1.

[4] Idem p.3.

Project Organization

The following chart shows the organization structure and working relationships of the project:



Below are brief descriptions of the assignments for staff operating units shown in the organization chart and committee groups designed to provide outside and specialized project support:

1. Principal Research Analyst(J. Avault)-responsible, with the aid of two Research Assistants, for development of the data base and for analysis of the data, including the

calculation of market values, relative tax burdens and impacts of various tax policy alternatives. This data gathering and analytical task(assessed and market values of all types of property, by neighborhood) has been the major focus of Phase I. A Computer Programmer(Karl Sittler) is providing specialized assistance with the computer requirements of the data base development phase and will be providing similar assistance for testing the impacts of revaluation and tax policy alternatives during subsequent phases of the project.

2. Principal Research Analyst(Michael Matrullo)-in charge of office industry survey being undertaken by the BRA Research Department as a related effort to the tax policy process. This is to be the principal source of information on the assessments and market values of office buildings--inventory of space, average rents, operating costs and taxes.

3. Principal Research Analyst(C. Carlaw)-responsible for tax policy analysis, working closely with the chairman of the City Policy Committee and the Special Assistant to the Mayor on Tax Policy, and supplementing impact analysis activity of J. Avault.

The City Policy Committee, chaired by the City's Deputy Mayor for Fiscal Affairs(James Young), consists of

the City's Commissioner of Assessing(Barbara Cameron), the Deputy Commissioner of Assessing and Director of Revaluation(Robert Ryan), the Director of the Boston Redevelopment Authority(Robert F. Walsh) and the project director. The City Policy Committee met on April 20, 1977 for an orientation session with the project staff and subsequently(on May 24, 1977) participated in a joint meeting with the Academic Policy Committee. This Committee's major purpose is to identify tax policy alternatives for testing by the project's analytical model, i.e. pending constitutional amendment on property tax classification, national and state property tax relief proposals, changes in state aid due to revisions in equalized valuations, City's legislative program of tax relief, Chapter 121A tax policy.

The Academic Policy Committee consists of Daniel M. Holland, Professor, Sloan School of Management, M.I.T.; Oliver Oldman, Professor, Harvard Law School; Raymond Torto, on leave from Economics Department, University of Massachusetts at Boston and Special Assistant to Mayor of Boston on Tax Policy, 1976-78; Robert M. Weinberg, Director, Public Management Program, Boston University. During Phase I this Committee met on April 7, 1977, again on May 24, 1977 and joined the City Policy Committee at its meeting on May 24th. The Academic Policy Committee's role

is to review staff papers covering technical matters prior to project committee meetings and to serve in a variety of technical assistance capacities as requested by the project staff.

The expert information panels, not yet convened but in the organization stage and planned for the fall of 1977, are designed to provide supplementary information on sectors of the property tax base where available data are limited, and/or where specialized advice is needed on tentative assumptions concerning relative values, burdens and impacts. Plans call for using panels for such complicated areas as the older commercial sector, the retail trade sector, and the investor-owned residential sector. In addition, advisory groups with special interests in tax policy, i.e. Massachusetts Taxpayers Foundation and Greater Boston Chamber of Commerce(Tax Policy Committee) will also be convened during the fall/winter of 1977 to elicit additional feed-back on tax policy alternatives and impacts.

A Peer Review Team will conduct two reviews of the project--at the end of September and early in December--through a group consisting of several members of the Urban Consortium representing Public Technology, Inc.(PTI), supplemented by PTI staff members. The Peer Review Team will be submitting written reports to the project director

following these two-day meetings indicating its reactions and recommendations.

Project Progress

The data collection/analytical activity that dominated Phase I was designed primarily to predict the potential impact of the impending revaluation of real estate in Boston[5]-- to indicate the current value of taxable property; to identify and measure the shifts in tax burden that 100 percent valuation of property would generate; and to project how market values of property will be affected by such shifts in tax burdens.

Each of the data base components is at a different stage of development and refinement. The expectation is that by the end of July, 1977, the required data for residential property will have been gathered and analyzed. As of the end of June, 1977 the following data for one to three-unit residential structures and condominiums had been

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[5]On December 24, 1974, the Massachusetts Supreme Judicial Court handed down a decision in the case of the Town of Sudbury et al vs. Commissioner of Corporations and Taxation et al, upholding the petition of the plaintiff that the State Tax Commission "has the power and duty to direct local assessors to take such action as will tend to produce uniformity throughout the Commonwealth in valuation and assessments." In implementing the resulting interlocutory decree of the court, the Massachusetts Commissioner of Corporations and Taxation has ordered local assessors in each city and town to submit a plan indicating how they will proceed to furnish the Commissioner with accurate statements of fair cash value for all taxable property.

tabulated by ward--number of taxable properties(1977), average and total assessed values(1977), and average and total market values and average and total assessment/value ratios(based on 1975 sales data). Project emphasis on this phase of the data base is explained by the fact that the Assessing Department's own information on this category of the tax base is particularly unreliable.

Similar data for multi-dwelling properties are being compiled and analyzed at a rate of progress only slightly behind that for the one to three-unit residential groups. As of the end of June, 1977, work on assessment/sales ratios for this category had been finished; estimates of the number of properties were being finalized; and average sales prices for dwelling unit by ward were being calculated.

In addition to average sales prices, assessment/sales ratios and numbers of properties, the analysis of residential data will cover turnover trends(by ward and type of property, including default conveyances) and market strength indicators for each class of property in each ward, information that will be useful to estimate how property values might react to tax shifts due to revaluation.

A collateral in-depth survey of the office industry under way in the BRA's Research Department is viewed as the project's primary source of required information on office buildings in the four downtown areas of Boston--the

Back Bay, Midtown area, Financial area and Government area.[6]. This survey--to be completed by August, 1977--consisted of three phases--building inventories, office managers' survey and office tenants' survey. It contains comprehensive detailed information on the downtown office building stock, age of structure, gross square feet of space, office vacancy rates, average rents, operating expenses, property taxes, and sales prices in addition to data on future needs, plans, preferences and the current market for office space in four classes of buildings.[7] The project will be using capitalized income data based on net income

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[6]Michael Matrullo, "The Office Industry Survey". Interim Report, Third Draft, June 7, 1977, Research Department, BRA.

[7]Buildings are grouped according to quality in the following four categories: Class A - new space(of recent construction) or rehabilitated old space; characterized by open floor area of few obstructions or completely modernized interior; Class B-space in buildings constructed before 1960, continually maintained and in very good condition; characterized by modernized or excellently maintained lobby and access ways; may or may not be modernized, depending on lease arrangements; Class C-buildings constructed before 1960 with only superficial and essential maintenance of office space, lobbies and hallways; some modernization of office may have occurred but buildings generally not equivalent to those in Class B, even though of same age and construction type; Class D-buildings of similar age to those in Class B and C, but with no interior space modernization and little upkeep. From Appendix B, Matrullo, "The Office Industry Survey", op.cit.

figures to estimate market value and tax-generated value changes.

Despite the comprehensive nature of the office building survey, it does not provide information on office buildings and mixed-use properties containing office space that are located outside of downtown Boston. Among the approaches being considered by project staff for estimating the values of such properties are (1) to assume that their assessments are at the same proportion of value as older downtown office buildings; or (2) to assume that their economic and tax characteristics are similar to so-called Class B buildings downtown or an average of Class B and Class C buildings.

Project staff will also be looking at the results of a special BRA study of tax agreements with so-called 121 A Corporations that constructed multi-residential buildings (mainly projects assisted by Massachusetts Housing Finance Agency), office buildings or mixed residential-commercial buildings under special legal provisions authorizing payments in lieu of taxes for limited dividend corporations.[8]

Still uncertain is the selection of methodology to

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[8]Report being prepared under direction of Peter Menconeri, to be completed by fall of 1977.

estimate the values of retail stores, hotels and warehouses. Assessment/sales ratios compiled for 1975 on industrial and vacant properties are likely to be used for estimating values in this category. As of the end of June, 1977 the project staff was predicting that the data base phase would be completed by mid-August, 1977.

Project staff also hope to tap the advice and counsel of several expert panels to fill in some of the extant data gaps (retail stores, office buildings outside downtown areas, etc.) and to solve certain methodological problems, i.e. income capitalization rate formulas for estimating office building values.

In addition to reviewing progress being made on developing the data base for tax policy analysis--assessed valuations, sales price data, property turnover data, market strength data, etc.-and on staff approaches for overcoming certain shortcomings of available information, participants at the several meetings of the Academic Policy Committee and City Policy Committee(April 7, April 20, May 24 and May 25) discussed the following tax policy issues that would impact on revaluation, scheduled for implementation in 1981:

1. The state constitutional amendment on classification of property that will be on the statewide ballot for final approval by the voters in November, 1978;

2. The comprehensive package of property tax replacement filed by the Massachusetts Taxpayers Foundation with the Legislature in 1977, and designed to raise statewide revenues available to cities and towns by a net total of about $143 million and by another $100 million for municipalities in the metropolitan transit district;

3. The selective package of property tax relief filed by the City of Boston with the Legislature in 1977, estimated to reduce property taxes by almost $150 million.

The significance of the relative impact and timing of these initial tax policy issues lies in the projection (1) that the City can probably get through the 1978 fiscal year with little or no increase in property taxes, through a combination of deep budget reductions and higher than anticipated increases in state aid and federal assistance; (2) that supplementary City revenues ranging from $7-10 million(through authorization of the parking facility excise tax, higher traffic fines and taxes on properties of the Massachusetts Port Authority) combined with continued holding of the budget line and approval of the property tax classification amendment in 1978 could mean another year of temporary stabilization of the current level and distributional patterns of property taxes; and (3) a large-scale package of property tax relief, similar to that offered in 1977, will be critical for 1981, the

year in which the revaluation is scheduled for installation, since the $70 million in estimated property tax reduction for Boston will be timed to offset the drastic shifts of property tax burden among property tax categories and income groups, as predicted by the Oldman-Holland report of 1974.[9]

Also reviewed by the Academic Policy Committee and City Policy Committee at its meetings was the proposition, urged by Professor Oldman of the Academic Committee, and analyzed by the project staff,[10] that interim steps toward revaluation be taken within specific categories of property to correct extreme cases of under-valuation by making upward adjustments in such cases, temporarily foregoing assessment decreases. The staff tested out this proposition by estimating the impact on one to three-unit residential structures of revaluation based on alternative assessment/value ratios of .267(the citywide average for residential property) and .304(the citywide average for all property). According to the staff analysis, at the current property tax rate, reassessment of some of the more under-valued

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[9]Boston Urban Observatory, Estimating the Impact of 100% Property Tax Assessments of Boston Real Estate(August, 1974).

[10]See John Avault, Research Department, BRA, "Raising Property Tax Revenues and Reducing Assessment Disparities, for Fiscal Year 1978", A Working Paper of the Tax Policy Analysis and Planning Group, April 1977. According to this analysis there are some 66,000 properties in this group, with a current total assessed valuation of about $365 million, representing about one-quarter of the City's real estate assessments.

properties in selected wards in accordance with this suggestion would generate $13 million to $31 million in additional taxes, while correcting extreme assessment disparities.

The reaction of the Deputy Commissioner of Assessing, since appointed by the Mayor as Director of the Equalization Program to reassess all real estate in accordance with the directive of the State Tax Commission, was not to favor a partial implementation strategy on revaluation, citing the importance of enough property tax relief to counteract the negative effects on market values of such interim reassessment and emphasizing the difficulties of pursuing revaluation within the present capacity of the Assessing Department. According to tentative revaluation plans, an operation separate from regular activities of the Assessing Department and supplemented by outside consultants will carry out the reassessment process. Its first task, to be completed in 6 - 8 months, is to satisfy the State Tax Commission and the court through submission of a new plan, that the technical requirements of the court order on revaluation are being complied with. Despite this difference of opinion on strategy and time, the Deputy Commissioner of Assessing expressed satisfaction with progress of the tax policy project and emphasized the importance to revaluation implementation of the project data

on alternative tax policy consequences.

Project staff also discussed plans to test out the impacts of revaluation on property market values, suggesting that a capitalization factor might be introduced reflecting anticipated reductions in values and thereby avoiding another round of reassessment by setting reassessment figures at levels lower than those required by full market value. Experience in other cities such as San Francisco with equilibrium assessments will be explored. Analysis of market behavior generated by revaluation will also include special categories of tax exemptions such as statutory abatements for widows, the elderly and disabled veterans.

Project Management

Steady progress in achieving project objectives and in observing the outlines of the original project design attest to the soundness of the project's organizational structure, to the effectiveness of its management, and to the conscientious efforts of principal staff. Although the project process is somewhat complex, the delivery of certain important outputs being in the hands of persons outside the project's regular organizational structure, the project director has the required sophistication and access to make the system work. Moreover, two factors, unanticipated when the project was being designed, give

the tax policy process special strength and stature--elevation of the Collector-Treasurer(James Young), to the newly-created position of Deputy Mayor; and continuance for a second year of the Mayor's Special Assistant on Tax Policy(Raymond Torto). The Deputy Mayor's jurisdiction includes the Assessing Department, the special revaluation program, the Office of Management and Budget and other City agencies with responsibilities in fiscal affairs, thereby giving greater assurance that the most sensitive issues affecting tax policy and revaluation policy will come under the purview of the project process. Moreover, it also increases the likelihood that the project process will become more institutionalized and grow in usefulness as a mechanism for policy review. As for Raymond Torto's continuance, his role is shifting, with the approval of James Young, from one of academic advisor to principal policy advisor to the Deputy Mayor on tax policy choices.

Project Expectations

For the most part, project principals express pragmatic hopes for the project. Their expectations include (1) development of an institutional analytical capacity in tax policy at City Hall, assisted by an adequate data base and ability to dissect tax options created by opportunities and circumstances; and (2) development of an interim institutional decision-making mechanism, equivalent to a fiscal policy cabinet, that would

evolve eventually into a more permanent arrangement of staff and operating fiscal services. Project principals also look to the tax policy process as one that forces decision-makers to discuss tax policy issues on a regular basis and one that encourages longer-term perspectives than City officials tend to use. By forcing and encouraging interaction, their hope is that tax issues will reach the policy agenda and that the process will increase the number of tax policy options that are likely to be considered. Although the timetables of the tax policy project and of revaluation do not coincide, the hope is that the tax policy process will continue after the federal grant terminates, thereby serving the tax policy analysis requirements of the revaluation program on a continuing basis. That the Deputy Mayor for Fiscal Affairs is also the chairman of the City Policy Committee strengthens the likelihood that this kind of institutionalization might take place. Moreover, there is great expectation that the tax policy project will yield an informational base that is so essential to massive educational needs of any future property tax reform effort.

One operating disappointment of the project is the failure of the Assessing Department to institutionalze the recording of property sales through joint arrangements between the Department and project staff. The result is

that the project must rely on 1975 sales data rather than more up-to-date sales information. Thus, project staff are quite realistic about the extent to which they can use their own tasks and needs to influence Assessing Department policies, procedures and behavior.

Project staff are equally realistic that, at least during the limited period of federal assistance, the project is unlikely to influence to any significant degree the City's assessment policies on revaluation plans. Hopes continue to be strong, however, that the revaluation planning and implementation program, geared to a scenario of property tax relief by 1981, will become increasingly dependent on the informational base and analytical outputs of the tax policy project.

SECOND PROJECT MONITOR REPORT
TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph Slavet
Project Monitor

November 1977

HUD Research Grant H-2628-RG

Boston Redevelopment Authority
Research Department

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Second Monitoring Report
Tax Policy Analysis and Planning Study

Introduction

This second monitoring report covers project activities during the period July - September, 1977. Since the primary focus of the work program during this phase was on marshalling and improving the data base and on selective analytic efforts for estimating the potential impacts of revaluation, this interim monitoring report will (1) synthesize the significant data base components developed to date during the planning process and (2) summarize the objectives and findings of the analytical applications undertaken since the initiation of the planning process.

The monitor would also like to clarify that part of the introduction to the first monitoring report that explained the shift in project strategy. Since the letter of award from HUD to the BRA clearly called upon the BRA "to develop and implement a policy planning model for evaluating the structure and tax administration modifications in connection with the revaluation of properties within the City of Boston",[1] the subsequent negotiated shift was more

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1. Letter of September 24, 1976 to Robert T. Kenney, Director, BRA, from Charles J. Orlebeke, Assistant Secretary for Policy Development and Research, HUD.

clearly one of a revision in methodology that was consistent with the original intent of the grant, rather than a change in project goals as indicated in the first monitoring report. Detailing of the revised project design reflected a broadening of the scope for the tax policy planning/analytical model and a break with the complete dependence on a methodology tied to a particular computer model with questionable potential replicability.

Summaries of Data Base Management System and Information Components

(1) Data Management and Processing System - known as a Sales System, to be used for preparing required reports for Commonwealth of Massachusetts and for tax policy analysis as part of project process. Two sets of market data files: (a) sales 75 data - information on sales of Boston property during first six months of 1975, showing ward number, planning district number, land area (square feet), property classification, total sales price, total assessed value, acceptibility of sale, and (b) sales (Hierarchic Management System - HMS) - information on sales of Boston property during second six months of 1975; maintained in three files -- ward, assessor's parcel(subfile of ward, parcel)owner's parcel(subfile of assessor's parcel; assessor's parcel contains following data: assessor's parcel number, planning district number, assessor's parcel

address, property classification, total assessed value and area of land in square feet; owner's parcel contains following data: buyer's name, seller's name, total sales price, mortgage amount, date sale recorded, book and page number (County Registry of Deeds records), and acceptibility of sale; data processing for tax policy analysis via PL/I programming language. Sales System capable of generating special data files for use with other programming languages or software packages; HMS System also manages other data files being used in tax policy analytic process: office building data; data on manufacturing firms, etc.

(2) Inventory, Market Values, Assessment/Sales Ratios: Taxable Residential Properties, 1-3 Dwelling Units - Numbers of taxable parcels of residential properties containing one to three dwelling units (as of January 1, 1976), by ward and by type (1,2 or 3-family); average assessed values of such properties (as of January 1, 1976) by ward, including city averages by type and citywide totals; average market values of such properties for 1975 by ward and by type, including city averages by type and citywide totals; and assessment/value ratios, including standard deviations of such properties for 1975 by ward and by type, including city averages and citywide totals; and histogram distributions of assessment/sales ratios and market values for properties of 1-3 dwelling units.

Summary tables for above data are shown below:

	1-Family	2-Family	3-Family
No. of taxable properties, city total	29,579	19,541	16,603
Assessed values, city total	$147.8 Million	$113.3 Million	$104.0 Millio
Market values, city total	$733.7 Million	$467.8 Million	$338.3 Millio
Average assessed values, city averages	$4,996	$5,797	$6,228
Average market values, city averages	$24,805	$23,937	$20,267
Assessment/sales ratios, city averages	.201	.242	.307

The low-high ranges among wards in average assessed values, average market values and assessment/sales ratios are summarized below:

	1-Family		2-Family		3-Family	
	Low	High	Low	High	Low	High
Average assessed values	$2363 (Ward 6)	$16,664 (Ward 5)	$3171 (Ward 2)	$16,539 (Ward 5)	$4438 (Ward 2)	$17,926 (Ward 5)
Average market values	$5000 (Ward 9)	$76,100 (Ward 5)	$7800 (Ward 8)	$64,600 (Ward 5)	$11,200 (Ward 9)	$74,400 (Ward 5)
Average assessment/ sales ratios	.108 (Ward 2)	.577 (Ward 8)	.131 (Ward 2)	.475 (Ward 8)	.149 (Ward 2)	.506 (Ward 14)

(3) Turnover of Real Estate(1975)

Property Type	No. Sold	Sales as % of Property Type
1-Family	1416	4.8
2-Family	995	5.1
3-Family	1124	6.7
Apartments	507	6.6
Condominiums	422	21.1
Land	389	3.6
Mixed Use	36	1.4
Mercantile	463	7.7
Industrial	34	3.4
Other	74	-

The low-high ranges among wards in turnover of 1-3 family residential structures are summarized below:

	1-Family		2-Family		3-Family	
	Low	High	Low	High	Low	High
Sales as % of Property Type	3.7% (Ward 16)	18.0% (Ward 9)	1.6% (Ward 3)	20.7% (Ward 4)	1.7% (Ward 4)	11.5% (Ward 17)

(4) Data on Downtown Office Buildings

Information on office buildings located in the downtown area of Boston to be used for estimating market values and assessment/value ratios drawn principally from two phases of BRA's comprehensive Office Industry Survey:[2] building inventory and office building managers survey. Provides detailed data on characteristics of office building stock, vacancy rates, operating costs, rents, markets and future needs, plans and preferences.

Inventory of buildings: 44 million gross square feet of office space in 378 buildings of downtown Boston - 85% privately owned; 15% government owned and occupied;

Private office space by building class: class A-40% (15.1 million square feet); class B-15%(5.7 million square feet); class C-43%(15.9 million square feet); class D-2% (715,000 square feet);

Vacant space - 5.6 million square feet(15.3% of office space); vacancy ratios by class of buildings: class A-10.3%; class B-8.4%; class C-20.0%; class D-9.0%.

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2. Research Department, Boston Redevelopment Authority, The Office Industry Survey, Sept. 1977, Interim Report, Prepared by Michael Matrullo.

Rent levels - Class A-$9.92 per square foot, class B-$7.35 per square foot, class C-$5.22 per square foot.

Operating costs - quite uniform for buildings within classes: class A-$2.97 per square foot, class B-$2.76 per square foot, class C-$2.33 per square foot, class B-$1.65 to $2.01 per square foot.

Real estate taxes - narrow differences in real estate taxes as between class A and C office space attributable to special tax agreements, uneven assessments and use of so-called 121 Corporation device - class A-$1.84 in real estate taxes per square foot, class B-$2.24 in real estate taxes per square foot, class C-$1.69 in real estate taxes per square foot, class D-$.95 to $1.72 in real estate taxes per square foot.

Average Rent, Operational Costs, Real Estate Tax
By Market Areas for Buildings By Class

	Rent	Operating Costs	Real Estate Taxes
		Class A	
Midtown	*	*	*
Back Bay	$10.84	**	**
Financial	9.85	$2.41	$1.87
Government	9.90	3.53	1.81
Downtown Summary	9.92	2.97	1.84
		Class B	
Midtown	*	*	*
Back Bay	7.14	2.63	2.26
Financial	7.85	2.94	2.63
Government	6.42	2.68	1.74
Downtown Summary	7.35	2.76	2.24
		Class C	
Midtown	4.84	2.63	1.93
Back Bay	5.28	2.16	1.47
Financial	5.44	2.71	1.88
Government	5.49	1.40	1.39
Downtown Summary	5.22	2.33	1.69

Note: Figures are per square foot per year.

* Buildings not surveyed in this class.

** No answer.

Source: BRA, The Office Industry Survey, op.cit., p. 13.

Market Area Profiles:

(1) Financial Market Area - largest of the four downtown office building market areas (20.8 million square feet in 123 office buildings; over half private downtown office space) - average vacancy rate: 13.4%; two percentage points lower than overall downtown vacancy rate but second highest vacancy rate of four market areas. High degree of optimism over market conditions in this area.

(2) Back Bay Market Area - second largest office building market area (8 million square feet in 103 office buildings - second lowest average vacancy rate: 12.7%. Vacancy rates vary greatly - from 7.4% in Newbury Street subarea to 56.0% in Massachusetts Avenue subarea. Relatively high degree of pessimism about market due to two factors: (a) opening of Hancock Tower with 2 million square feet of space generated fear of shifting of office tenants in Back Bay, (b) perception of gradual dispersal of advertising and visual arts firms out of Back Bay to new office buildings in Financial and Government market areas and to suburbs.

(3) Government Market Area - third largest market area for office space (4.8 million square feet in 44 buildings - 13% of total downtown office space). Contrast in quality - half of office space is Class A(attributable

to urban renewal development) while containing half of all downtown Class D building space, mostly in North Station subarea. Lowest vacancy rate: 7.8%. Uncertainties of this market: fears of BRA's developmental plans for North Station subarea; concerns over plans for depression of Central Artery.

(4) Midtown Market Area - smallest market area for office space (4.4 million square feet in 93 buildings - 12% of downtown total). Very little new. Much of space is Class C. Vacancy rate - 32.9%; twice the City average. Factors explaining high vacancy rates: Park Square - problems and delays with urban renewal; Leather District and Chinatown - gradual outmigration of leather and garment industries; many buildings previously used for commercial purposes now being classified as office structures; changing use from commercial-industrial to other purposes suggests deteriorating office building pattern in these areas. Because of changing market orientation and declining demand for Class C office space, there is uncertainty as to future prospects. Little private investment by present owners. Property taxes relatively high and income relatively low due to high vacancy rates.

Analytical Applications

(1) Assessment of Family Homes Using Income Capitalization Methodology

In response to request of Assessing Department, tax policy project undertook an analysis of the revaluation consequences for single-family homes if capitalization of income were used as the basis for determining value rather than actual sales data. Calculations in this analysis, using 75% as the ratio of net to gross income and a cap rate of .10, indicated that for single-family homes, the aggregate assessment/capitalization value ratio was .39. While this was about 2-1/2 times the aggregate assessment/sales ratio (about .20), there is a consistent relationship between this ratio and unweighted assessment/sales ratios. Also pertinent to any comparison between results from applying the two methods are the inconsistencies among current assessment/sales ratios for individual properties.

The analysis conceded the methodological weakness of estimating gross rent on the basis of a fixed percentage of sales price (i.e. 1% of sales price), since the sales price really emerged from balancing imputed rent, taxes, operating expenses, discount rates, etc. In Boston, where the average price for single-family homes is $25,000, this method for estimating rent would imply an average rental of $250 per month. Increasing the imputed rent, for example, from $250 to $375 more than doubles the capitalization value,

showing the consequences of raising income and lowering the effective tax rate.

Although this analysis disposed of some conventional wisdom in certain quarters that income-capitalization would show residential properties to be assessed at levels close to market values, the exercise does raise some questions for revaluation impact: (a) Are the proportional differences between sales values and capitalization values a constant relationship reflecting differences between two patterns of market behavior? (b) Should the capitalization value be interpreted as an equilibrium level that sales values will eventually reach? (c) Will the assumptions used to calculate income capitalization -- imputation of gross income, determination of net expenses and capitalization ratios -- change over time?

(2) Impact of Court-Mandated Revaluation on Municipalities Other than Boston and Constitutional Amendment Affecting Property Classification

A 1974 study of the initial consequences of a court-mandated revaluation for 257 of the 351 cities and towns in Massachusetts concluded that, on average, the property tax bills of residential property owners would increase by over 16% while tax bills for industrial, commercial and personal property would decline by 23%, 12% and 32%

respectively.[3] The most significant finding of this report, however, was that the larger, older industrial cities would be most seriously affected by revaluation because of their relatively large concentrations of industrial and commercial property and disproportionate numbers of low-income residents. Thus, the result would be to make the property tax in Massachusetts even more regressive than it now is.

An update of the Wheaton report using 1976 data for a sample of 35 cities and 14 towns found that the residential tax bill would increase by 16% on average in the cities and by just over 5% in the towns. For the cities the average increases would range from 0% to 49%. Almost all the older cities would experience increases of over 20%. Within the residential sector, the single-family home would be most adversely affected by revaluation.[4]

The Torto update gave particular attention to the constitutional amendment for property classification as an alternative for lessening the impact of revaluation. This classification proposal, approved by two legislative sessions,

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3. William Wheaton The State-wide Impact of Full Property Valuation in Mass., Federal Reserve Bank of Boston, May, 1975.

4. Raymond G. Torto, "Property Revaluation in Massachusetts: A Look At Its Consequences", Draft, August 15, 1977.

will be on the November 1978 ballot for voter consideration. It authorizes the Legislature to classify real property according to use in "no more than four classes", thereby permitting different assessment/market values and, in effect, making legal the present pattern of fractionalized assessments.

The Torto memorandum, after citing several arguments in support of classification, raised the following questions of implementation:

(a) Is the "personal property" category to be a fifth classification, and how, if at all, is it affected by the amendment?

(b) Which types of real property will be grouped under each of the four classes to be designated by statute? i.e. Will structures of more than 4-6 units be in the residential or commercial category?

(c) What should the assessment ratios be for each class? What data should such ratios be based on? Are different municipal ranges of ratios possible?

(d) Should the implementation legislation delineate assessment methodologies or different methodologies for separate classes?

(e) What should the implementation legislation say about administrative discretion over classes, assessment ratios?

(f) Will the classes and rates affect municipal debt limits?[5]

(3) Evaluation of Tax Consequences of 121A Corporations and Tax Letters of Agreement[6]

For almost 20 years the City of Boston has been pursuing a tax policy affecting new construction that has become an increasingly controversial issue in assessing practices. As property taxes have escalated and assessment inequities have expanded, there has been growing concern that tax arrangements applicable to so-called 121A Corporations (authorized under Chapter 121 of the Massachusetts General Laws) and under extra-legal Tax Letters of Agreement authorized by the Assessing Department are exacerbating already difficult conditions. Since 1958 the Boston Redevelopment Authority has approved 67 121A Corporations and the Assessing Department has issued 84 Tax Letters of Agreement covering over $2 billion worth of new construction in the City. Under these special arrangements, property taxes have been calculated on the basis of "effective gross income" anticipated from the new developments. Taxes due through these tax arrangements

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5. Ibid, p. 9-10.

6. Boston Redevelopment Authority, "121 A Corporations and Tax Letters of Agreement: An Analytical Evaluation, A Summary of Findings and Recommendations", A Draft Report, Prepared by Peter Menconeri with assistance of Edward Blaine and Elizabeth Comer, July, 1977.

are below levels that would prevail if normal assessment standards would apply. The primary issue has become whether the original justification of 121A Corporations and Tax Letters of Agreements -- tax incentives to attract new development--was still cogent and whether their continuation was adversely affecting the City's limited, eroding property tax base.

Findings of evaluation:

(a) Most of 121A Corporations are subsidized residential developments located outside the downtown business district and covering over 10,000 dwelling units constructed since 1961; most of Tax Letters of Agreement, by contrast, are commercial developments located downtown, covering 12.5 million square feet of the 16 million square feet of new office space built since 1960 and over half the retail and hotel establishments built since 1960.

(b) Inadequate information is collected and inadequate monitoring is maintained of finances of 121 A's and Tax Letters of Agreement so that the City can bill and collect the real estate taxes or "in lieu of tax" payments(usually specified as 20-25% of gross income) to which it is entitled; if the data were adequately analyzed and the calculations adjusted in accordance with the 20-25% formula, the City could receive an additional $2.5-$4.0 million in

taxes from present tax agreements.

(c) Special tax agreements are an essential policy for attracting new development because of the need for certainty in determining future tax liability and because of the importance of maintaining competitiveness in downtown office markets as between Boston and other cities, including the suburbs--property taxes on office space in Boston average $2.10 per square foot (26.5% of rental income) compared with a U.S. average for office space downtown of $1.20 per square foot (15.6% of rental income); since the tax subsidy is most critical during early years of a new development, it is possible to gradually increase tax arrangements after first 3-5 years of a project.

(d) Because properties owned by 121A Corporations and covered by Tax Letters of Agreement are effectively insulated from property tax increases, there has been a gradual but growing shift in the property tax burden from downtown commercial areas to the residential neighborhoods; proportion of tax revenues attributable to downtown commercial area declined from 31.5% in 1950 to a low of 23% in 1970; since 1970 there has been a reversal of this trend because of the office building boom that has restored the downtown proportion to 25.5% in 1976, still

substantially below the 1950 level; from a tax revenue perspective, City has not been able to capitalize fully on the extraordinary level of downtown commercial growth; if the new office buildings built under Tax Letters of Agreement and worth about $600 million were taxed under assessing standards applicable to older similar properties, they would generate about $45 million in tax revenues as compared with actual revenues of $23.5 million.

(e) Since it costs the City approximately $1.25 per square foot of a modern office building for direct and indirect services, the "break -even" tax point is equivalent to about 14% of effective gross income.

(f) Because of preferential tax treatment provided to 121A's and under Tax Letters of Agreement, older office buildings are at competitive disadvantage, paying from 30-45% of effective gross income in real estate taxes.

(g) There are significant real estate tax differentials among commercial developments constructed under Tax Letters of Agreement that are difficult to explain; such inequities may be rationalized as the results of inadequate monitoring of rental income and the lack of standardized definitions of components of the equation used to effective gross income.

Summary of recommendations:

(a) Improve and centralize data collection activities

in administration of 121 A's and Tax Letters of Agreement; establish more effective and current monitoring of finances of developments constructed under special tax arrangements.

(b) Continue special tax arrangements to prospective developers until there is basic tax reform and reduction in property tax burden.

(c) New 121A's and Tax Letters of Agreement and existing Tax Letters of Agreement should be renegotiated for 5-7 year periods with automatic renewal options; if legally possible, replace Tax Letters of Agreement with legally-binding tax agreements.

(d) Tax basis for 121A's and Tax Letters of Agreement should be on a sliding scale of 20-30%, with initial tax negotiated on a proportional return basis and with gradual increase toward maximum provided the development is financially viable.

(e) City should provide for pass-through of increases in tax rate in future and renegotiated tax agreements to prevent further shifting of tax burden from downtown to residential neighborhoods.

(f) City should begin reducing tax inequities between older and newer commercial properties through special tax incentives under a tax abatement program to stimulate conversion or upgrading of older Class C and D office buildings.

Final Note

The analytical applications summarized to date are not only significant for their intrinsic policy importance, but they represent the kind of politically sensitive issues that tend to be the grist of cocktail party conversation, rather than problems dealt with through hard-nosed independent evaluation. That the tax policy project has the will and capacity to come to grips with such questions is a strong indicator of its relevance and strong leadership.

THIRD PROJECT MONITOR REPORT
TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph Slavet
Project Monitor

January 1978

HUD Research Grant H-2628-RG

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Third Monitoring Report
Tax Policy Analysis and Planning Study

Introduction

This third monitoring report covers project activities during the period, October - December, 1977. Project staff concentrated on the following efforts: (1) participation in and technical services to the Assessing, Research and Legal Assistance Group (ARLAG) established late in September, 1977 at the initiative of the Deputy Mayor for Fiscal Affairs; (2) expansion of the project analytical model, particular attention being devoted to state tax policy options and to the consequences/opportunities of the property classification constitutional amendment to be voted upon in November, 1978; (3) selective work toward achieving the data base development goa of the project; and (4) preparations for the first peer group review of the project conducted by the Urban Consortium Public Technology, Inc., as required by the project contract.

Assessing, Research and Legal Assistance Group (ARLAG)

The project director (A. Ganz) and the principal research analysis responsible for data base development and analysis (J. Avault), assisted by the project's computer specialist (K. Sittler), were involved in varying degrees in the work of ARLAG throughout the quarterly report period. Set up to cope with immediate and longer-range problems anticipated in making the transition to a new assessing system, ARLAG, an inter-agency task force, assumed responsibility for

designing a comprehensive plan for revaluation of the city's property and for dealing with pressing current legal challenges to the City's current assessment practices. Chaired by the Deputy Mayor for Fiscal Affairs (J. Young) and with the Director of Office of Management and Budget (J. Mechling) as Executive Secretary, ARLAG includes the following members: Commissioner of Assessing (B. Cameron), Associate Commissioner of Assessing (R. Ryan), project director (A. Ganz), Special Assistant to the Mayor for Tax Policy (R. Torto), the Corporation Counsel (H. Gleason) and Special Assistant to the Mayor for Housing and Development (A. Olins). ARLAG's specific functions are: (1) to develop a formal property equalization proposal for consideration of the Mayor and to oversee implementation of such authorized plan, (2) to serve as a Litigation Task Force, with the assistance of a specially-appointed chief counsel, in reviewing the nature and consequences of suits based on so-called "disproportionate" findings by the Appellate Tax Board and the courts, and in developing alternative strategies for dealing with such findings, (3) to press for City Council funding of the new Office of Property Equalization, (4) to review the fiscal impact of pending state legislative proposals for property tax relief and their potential impact on the implementation of revaluation, and (5) to consider the statutory adaptation of so-called Tax Letters of Agreement--

these are similar in principle to legally-authorized Chapter 121A agreements--either as part of revaluation policy or under a property classification system, if approved by the voters, and as subsequently enacted through legislation.

ARLAG emerged from growing concern over the consequences of two major challenges of Boston's assessment policies and practices: (1) an unanticipated flood of abatement applications and (2) renewed pressure by the state for revaluation in accordance with the Massachusetts Supreme Judicial Court's decision of December, 1974.*

Abatement applications for the 1977 tax year alone had climbed to fiscally dangerous levels, reaching a total of 13,000 petitions which accounted for over $700 million in assessed valuations. Abatement petitions for 1977 were 50 percent over the total number filed during the prior year and threatened to bring the total volume of approved abatements for 1977 to a record high of $45 million. As serious as the skyrocketing abatement trend, however, is the tenacious tone of the suits, the growing tendency of property owners' lawyers to resist settlement with the Assessing Department's Board of Review and to take their client's cases directly to the Superior Court and the Boston Housing Court, and

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*Town of Sudbury v. Commissioner of Corporations and Taxation, 74 Mass. Adv. Sh. 2405, 321 N.E. 2d 641(1974).

the spreading claim of unconstitutionally disproportionate assessments, as contrasted with their prior emphasis on overvaluation as documented by operating data on disputed assessments. Not only are there growing fears among the City's assessing officials that the cumulative effect of court decisions on behalf of property owner plaintiffs will be to weaken Assessing Department control over assessment policies, but that the "disproportionate" argument is providing additional leverage to taxpayers in abatement petitions filed with the Board of Review simply through the threat of their lawyers to convert their overvaluation petitions before the City's own appellate agency to disproportionate cases to be filed with the courts.

Added to the disturbing trend in abatement litigation is the growing pressure being applied on municipal assessors by officials of the State Department of Corporations and Taxation for more substantial progress by cities and towns toward revaluation in accordance with the mandate of the Supreme Judicial Court in the so-called Sudbury case.* A central concern of officials within Boston's Assessing Department is that a court finding of inadequate compliance with revaluation directives of the State Department of Corporations and Taxation could trigger court assignment of a master to carry out full value assessment, thereby

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*See "First Project Monitor Report, Tax Policy Analysis and Planning Study", Footnote 5, p. 9.

divesting the responsible City officials of any real control over the revaluation process and over assessment policies.

Thus, ARLAG has both short-term and long-term goals: (1) providing the time frame necessary (a) for establishing the legal basis for a classification system of assessment, (not achievable until 1979) (b) for designing/establishing a new assessment system and (c) for equalizing assessments, in advance of full-scale revaluation, by successfully challenging the rising tide of abatement applications and class action suits; and (2) strengthening the City's position with state supervisory assessment agencies and the courts by demonstrating satisfactory movement toward revaluation and a revised assessment system.*

The tax policy project director participated in sessions of ARLAG through meetings held on September 27, October 25, October 26 and December 2. At the request of ARLAG the project director authorized the project's principal research analyst (J. Avault) to provide statistical and analytical services to the new advisory group, as requested. The latter's role consisted of several principal assignments: (1) An analysis of the initial impact of full value assessments on property values; (2) an analysis of the estimated cost of abatements on City of Boston tax appeals pending

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*"Proposal for the Acquisition of Special Skills to Assist in the Transition to a New Assessment System", prepared by Assessing Department under guidelines by the Office of Management and Budget, Sept. 1977.

before the State Appellate Tax Board (ATB)--this data was presented at the ATB hearing by a staff member of the Assessing Department on December 20, 1977; (3) testimony on December 20, 1977 to the ATB on tax capitalization analysis to support the City's case for a citywide average equalized value ratio as contrasted with the appellant's claim that assessment should be based on the "lowest-class" standard, a standard that would require far more substantial taxpayer relief.*

The first assignment, which included a computer printout covering all arms-length real estate sales for 1975 contained in the project's data base, was designed to measure the possible initial effects on property values of full value assessments. The following assumptions and methodology were used in this analysis: (1) all taxable real estate is being assessed according to values measured by sales prices; (2) personal property assessments (currently $246.8 million) are assumed to equal full value and to remain unchanged; (3) the tax rate will decline in proportion to the increase in tax base, with property tax requirements remaining unchanged; (4) the equalized value of taxable realty in Boston is estimated at $3.6 billion, as determined by the Appellate Tax Board; (5) the revaluation tax base is

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*See Footnote 10 in Shoppers' World Inc. v. Board of Assessors, 348 Mass. 366, 203 N.E. 2d 811(1965), cited by plaintiffs' attorney in ATB hearings of December 19-22, 1977 as precedent for lowest class standard.

$3,846,788,000; (6) the new tax rate is $116.04 (old rate x ratio of old tax base to new tax base); (7) the new (full value) tax bills are equal to the new tax rate of $116.04 x the recorded sales price; (8) the new property (sales) values are calculated by capitalizing the values of the tax bill changes--new price = old price-(full value tax bill-old tax bill) x M, where M is the inverse of 1 divided by the appropriate capitalization rate--for 1-3 family residential properties a capitalization rate of .104 is assumed (since the entire purchase price is considered to be mortgaged --8-1/2% mortgage for 20 years--the annual payments toward principal and interest are equivalent to 10.4% of mortgage total; for other classes of property, a capitalization rate of .12 is assumed.*

Under the second assignment, three standards for fair property taxation were applied to the 1976 figures on values, assessments and ratios used in the equalization study of the Massachusetts Department of Corporations and Taxation to estimate the costs of ATB decisions affecting assessments being appealed. (It was estimated that these disputed assessments involved total tax payments of about $326 million based on an

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*John Avault, "Example Estimates of 100% Valuation Impact on Property Values", Oct. 19, 1977, Memorandum to Commissioner Barbara Cameron, Bob Ryan, Arthur Shea, Assessing Department.

assumption that the affected properties were being assessed at 60 percent of market values.)

These three standards included: (1) lowest class standard, established at the effective tax rate level enjoyed by the most under-assessed class of properties; (2) equalized tax rate standard, established at the tax level that would have been established had all properties been assessed at full market value - this standard is equivalent to the average effective tax rate applied to all taxable property in city, which makes critically important the city-wide average assessment/value ratio; and (3) equilibrium value standard, taking into account the probability that, because of tax shifts and varying tax capitalization rates, the tax base of market values might have declined as a result of full value assessment of all properties. It should be noted that the 1976 state equalization study had established .268 as the lowest class ratio--for single-family properties; it calculated the average citywide assessment/value ratio at .500, based on a total value aggregate of $3.6 billion.

The following table summarizes essential conclusions concerning assessment/sales ratios, effective tax rates and estimated costs to the City based on the three standards of property taxes:

	Lowest Class Standard	Equalized Tax Rate Standard	Equilibrium Tax Base Standa
A/S Ratio	26.8%	50.0%	53.0%
Effective Tax Rate	$52.70	$98.40	$104.00
Estimated Cost to City	$180.4M	$54.3M	$38.0M

The estimated costs of adverse ATB findings range from $38.0 million to $180.4 million. Note that the "lowest class" standard, being argued on behalf of a group of appellants before the ATB, would be the most costly in terms of tax refunds.*

The final contribution of the principal research analyst (J. Avault) to ARLAG efforts was his testimony at the ATB hearing of December 20, 1977 on how property taxes affect property values. Since tax capitalization is the theoretical basis for equilibrium tax base calculation and can be used in support of a citywide equalized tax rate standard, requiring less property tax relief and smaller abatements than the "lowest class" standard, ARLAG representatives were particularly interested in having such testimony presented by the staff member of the tax policy project.

Using three examples to explain the calculation of tax capitalization--two single-family homes, one assessed at less

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*John Avault, "ATB Summary Analysis and Tentative Projection of Costs", Nov. 8, 1977, Memorandum to ARLAG.

than 10 percent of sales price and the other at 20 percent of sales price, and a commercial property assessed at about 35 percent of sales price--Avault pointed out that the theory of tax capitalization was grounded in the fact that income limits the availability of funds to meet housing costs required by home owners and that owners of commercial properties invest in such opportunities in the expectation of yields comparable to those from other investments. Therefore both mortgage payments and property taxes represented combined limits on housing outlays from income. According to Avault's testimony, when tax bills increase, there is an equivalent smaller sum of money available for mortgage payments, dictating a lower acceptable purchase price if he desires to sell.*

It should also be noted that in addition to serving with ARLAG, the tax policy project director (A. Ganz) testified at the December 19, 1977 hearing of the ATB, presenting comparative data for Boston (including its neighborhoods), the metropolitan area, the state and the nation that demonstrated the city's vulnerability to higher tax and economic burdens--per capita personal income data, housing cost and family budget data and standard of living data.

Leadership of the tax policy project is well aware of the opportunities that ARLAG provides for linking goals and

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* Summary of Testimony of John Avault on Tax Capitalization Calculations before the Appellate Tax Board on December 20, 1977.

activities of the tax policy project more closely with the short-term and long-term requirements of Boston's fiscal and tax policy decision-makers. This leadership, including the Deputy Mayor for Fiscal Affairs, who heads up both ARLAG and the tax policy project, is also sensitive to the possibility, however, that the tax policy project could be de-railed and even consumed by a flood of data and analytical demands that are primarily expedient and defensive, designed to avert or delay a pressing court or state administrative edict, not to hew closely to the carefully-conceived project design. It should also be noted that the professional focus of ARLAG is heavily legal whereas economic and statistical analyses are the central thrusts of the tax policy project. Although the tax policy project shares the equity (legal and constitutional) goals of ARLAG's lawyers, its framework for achieving these goals are built into a more comprehensive design for correcting long-standing abuses of an entire fiscal, tax and administrative system.* Meeting the legitimate and priority data collection/analytical needs of ARLAG without adversely affecting the integrity or impeding

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*The tax policy project has billed the City for special activities in support of the Assessing Department and ARLAG in the amount of $39,173. (Memo of Dec. 14, 1977 to Alex Ganz from J. Avault and K. Sittler).

the goals of the tax policy project did emerge as an important issue of the study process during the reporting period. Although project staff do not anticipate significant future roles in ARLAG activities that are related to assessment litigation before the ATB and the courts, they do expect heavier involvement in ARLAG's revaluation planning/implementation processes once the City Council authorizes funds for carrying out initial steps in reassessment. This prediction comes from the fact that the Superior Court Justice hearing class action suits based on alleged lack of compliance with state orders on revaluation has included the Mayor and City Council, in addition to Boston assessors, in the list of defendants in such cases.

Expansion of Analytic Model

Several events affecting tax policy choices and the priority assigned to the constitutional amendment authorizing differential assessment and taxation of property gave more definitive shape during the reporting period to the content and scope of the project's analytic model.

Final results of the City's fiscal legislative package of 1977--some 27 bills that were designed to generate about $146 million through local revenue diversification, improved revenue collection and a variety of property tax relief measures--demonstrated the futility of a unilateral municipal tax reform strategy, even on the part of a large central city.

Most of the "big ticket" items--municipal payroll excise, excise tax on parking facilities, excise tax on institutions of higher education, elimination of statutory tax exemptions on dormitories, restoration of General Relief reimbursements to cities and towns for medically indigent, state reimbursements for tax-exempt property, etc.--were defeated. A few minor bills with relatively limited fiscal impact were enacted--additional penalty for nonpayment of parking fines, increased collection fees in tax delinquency, increased charges for municipal lien statements, and property tax priority from fire insurance proceeds on tax delinquent buildings. The most significant legislation authorized by the Legislature, which faces litigation and replacement with a new bill in 1978, requires the Massachusetts Port Authority to make tax payments to Boston and Chelsea amounting to five percent of the Authority's annual income. Estimated to mean about $3.5 million to Boston, this is a revised version of the original filed by Boston and is likely to be superseded by legislation limiting such taxes to certain lands at Logan airport and authorizing payments in lieu of taxes to Boston and Chelsea. The substitute statute is likely to generate lower revenue yields than those under the enacted legislation of 1977.

Having demonstrated the geographical, political, constitutional and fiscal limitations of legislatively-

authorized municipal revenue diversification, City decision-makers have shifted their tax scenario emphasis entirely to state financial assistance (including selective shifting of municipal functions/costs to the Commonwealth), as the only feasible political and economic option for property tax relief. Prospects that the Governor is considering the allocation of some $200 million in surplus funds for property tax relief by the beginning of the 1978-79 fiscal year lends encouragement for some short-term, stop-gap assistance. Boston's allocation, depending on the specific details, could range between $30 and $40 million. Equally encouraging is the longer-term commitment of the Commonwealth for sharing a substantial portion of increases in state tax revenues due to economic growth and inflation for local property tax assistance and for using funds that may be freed up through the assumption of state welfare costs by the national government "to help equalize the ability of communities to provide an adequate level of services to their residents".*

Not only do Boston decision-makers seem to be closing ranks behind state financial assistance as the pragmatic approach for bringing property taxes in Boston down by as much

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*Massachusetts Office of State Planning, City and Town Centers: A Program for Growth, Sept. 1977, Submitted to the Special Commission on the Effects of Growth Patterns on the Quality of Life in the Commonwealth, p. 85.

as $200 million a year, the long-range goal, but they are settling on (1) broadening of the state sales tax (including a regional sales tax piggy-back for financing the operating deficit of the Massachusetts Bay Transportation Authority) as the logical financing mechanism for large-scale replacement of local property taxes with broad-based state tax levies,* and (2) enactment of legislation that would mandate Commonwealth sharing of state tax growth with its cities and towns.

To generate support for the selection of a broadened sales tax as the financing source for property tax relief, the project's analytic model has been expanded to include an evaluation of the incidence effects of such a proposal.** The conclusions of this analysis are:

(1) Converting the state sales tax to a more general tax on consumption, exempting food, utilities and prescription medicine, " makes the sales tax neither more regressive nor progressive. If anything, there is some flattening of the incidence over income. Certainly there is no increase in regressivity..."***

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*In a 10-part series of editorials on "The Property Tax" dated Dec. 12-23, 1977, The Boston Globe endorsed this proposal provided it were offset by tax credits for low income taxpayers.

**As contained in H. 2476(1977) filed by the Massachusetts Taxpayers Foundation.

***Richard Syron and Raymond G. Torto, "The Incidence Effects of Broadening the Sales Tax for Property Tax Relief in Massachusetts", Dec. 1977, p.6.

(2) Comparison of the incidence of the present tax system to the proposed tax system for different income classes in a sample of 21 cities and towns "indicates that the present Massachusetts state and local tax burden has a regressive impact across income classes in both central cities and wealthy suburbs".* Adoption of a broadened sales tax base at a four percent rate and increased local aid, similar to the 1977 property tax relief proposals of the Massachusetts Taxpayers Foundation, would generate "a modest reduction in the tax burden of the lower income families living in cities. This reduction would be financed principally by a small increase in the tax burden of high income families living in wealthy suburbs. For lower income families living in wealthy suburbs, the increase in sales tax burden would be offset by their reduction in property taxes. Overall, the proposal is progressive due to the progressive distribution of state aid. Our calculations indicate that, even though the (Taxpayers Foundation) plan relies heavily on sales taxes, its overall effect would be to diminish the regressive incidence of state and local taxes in Massachusetts." **

Concern over the legislative model that would implement voter approval of the constitutional amendment authorizing property classification intensified during the reporting

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*Ibid.

**Ibid, p. 6-7.

period. The Special Assistant to the Mayor for Tax Policy (R. Torto) followed up the August 15, 1977 memorandum to the City's Corporation Counsel (H. Gleason) with a more definitive series of questions concerning the legal implications of the classification amendment as summarized below:

(1) Since the language of the amendment dictates "no more than four classes of real property", can a legislative scheme be devised containing four classes of real property and one of personal property, or should personal property be included in one of the four classes?

(2) What interpretation should be given to the phrase "according to use" e.g. land use classifications(residential, commercial, vacant land); social/economic uses(investment income, shelter)? Whether apartment houses should be classified as "commercial" or "residential" is the best example of this dilemma.

(3) Does the language authorizing "reasonable exemptions" extend to exemptions beyond those authorized by current law, such as a homestead exemption for a separate class of single-family houses?

(4) Does the amendment authorize the Legislature to empower municipalities to establish their own classes and tax ratios?

(5) Does the language in the amendment "to assess, rate and tax such property differently in the classes"

authorize calculation of effective tax rates that vary from class to class in either of two ways: (a) through different ratios of assessed value to market value for each class, while holding the tax rate constant, thereby generating differential effective tax rates, (b)through different tax rates for each class, while holding constant the ratio of assessed value to market value for all classes, thereby generating differential effective tax rates.

The high priority being given to the classification amendment is, of course, based on the realization that revaluation could be implemented under a property classification system without drastic shifts of property taxes among categories of properties, thereby minimizing the political, social and economic impacts of revaluation. Sensing that a coalition of cities and towns with assessment disparity patterns and revaluation consequences roughly similar to those in Boston might be organized around the mutual benefits of a uniform classification model, the Special Assistant to the Mayor for Tax Policy has been supervising the planning and implementation of computer run tests that compare present tax bills with tax bills based on average assessment/sales ratios for different classes under a variety of classification mixes. These are being conducted by the principal research analyst (J. Avault) and the project computer specialist (K.Sittler). The computer runs are being organized around the following groupings of municipalities: (1) all cities,

(2) all cities and all towns with over 10,000 population, (3) all towns, (4) towns with over 10,000 population, (5) towns under 10,000 population, and (6) all cities and towns.

Under the initial computer runs analyses were generated for the above groupings of municipalities based on the following classification scenarios (not more than 4 classes in each):

(1) Scenario A:
R1, R2, R3
R4 RC
C, I
L, AH

(2) Scenario B:
R1
R2, R3, R4
RC, C, I,
L, AH

(3) Scenario C:
R1, R2, R3, R4
RC, C, I
L, AH

(4) Scenario D:
R1, R2, R3
R4, RC, C
I
L, AH

(5) Scenario E:
R1, R2, R3, R4, RC
C
I
L, AH

(6) Scenario F:
R1, R2, R3, R4
RC, C, I, L,AH

For each designated group of municipalities aggregate figures were calculated showing by property type (e.g. R.1) and for each class within each classification scenario the

following data: (1) present assessments, (2) estimated full values and (3) assessment/value ratios. For each municipality under each grouping, the classification analysis displayed the present tax rate, the full value tax rate, the present aggregate tax bills and adjusted (full value) aggregate tax bills under each class of property and the percentage change in such aggregate tax bills; it also displayed for each of the six classification scenarios the present tax rate (hypothetical) and for each property type within each scenario the hypothetical present aggregate tax bills, the adjusted (full value) aggregate tax bills and the percentage changes in such hypothetical aggregate tax bills from the present aggregate tax bills and the percentage changes in the hypothetical adjusted (full value) aggregate tax bills from the present aggregate tax bills.

Considerable expansion of the current work on classification model analysis is being planned along the following general lines: (1) holding constant the current level of total tax payments being made within each class and evaluating the shifting of taxes as between property types within each class--thereby measuring the dollar change in tax burden as compared with the present level, the percentage change in the tax burden from the present level and the percentage change in the tax burden generated by full value assessment; (2) applying a $7,000 homestead exemption to a residential class (R1, R2, RC) and a 50 percent assessment/sales ratio to a

L/AH class under the following classification mix:

R1, R2, RC
R3, R4
C, I
L, AH
Personal

The above computer runs are designed to show that these classification scenario assumptions and special tax exemption arrangements can keep within reasonable limits the tax shifting impact of revaluation on home owners and owners of vacant land.

Evaluation of the consequences of tax agreements governing 121 A corporations and of Tax Letters of Agreement, through an analytical research effort* linked closely to the tax policy project, generated some important decisions announced by the Mayor on November 21, 1977, decisions that generally coincided with recommendations in the research report: (1) The one-year moratorium on authorizing 121 A tax agreements was lifted and guidelines issued imposing tighter conditions on granting such agreements, (2) the terms for such agreements will be 13-15 years instead of the prior policy of 40 years, (3) in lieu tax payments will fluctuate at established percentages of gross income designed to facilitate initial financing and to permit adjustments under escalator clauses to reflect development maturity and

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*See "Second Project Monitor Report", Nov. 1977, p. 14-18.

changing demands. The first 121 A tax agreement approved under these new guidelines was negotiated for 15 years with in lieu taxes calculated at 23 percent of gross income, but with no escalator arrangements. More detailed guidelines based on continuing evaluation by an inter-agency committee will be forthcoming.

Expansion of Data Base

The project made relatively little additional progress during the quarter in completing the data base. One major data gap continues to be the apartment house category; little has been done with the residential-commercial group or with the industrial group. Still underway is tax analysis for the critical commercial (office building) category.

One interesting finding of this analytical phase of office buildings is that Class A buildings show relatively high income capitalization rates and Class C properties are displaying low income capitalization rates, indicating that owners of Class C properties are anticipating lower taxes from revaluation, resulting in higher sales prices, while Class A properties are expecting higher taxes as a consequence of revaluation.

Despite the accumulation of inventory data by ward on apartment houses--numbers of properties (Assessing Department), number of dwelling units (update of special report by BRA's Research and Planning Departments)*, assessed values

*Boston Redevelopment Authority, "Multi-Family Investor-Owned Housing: A Reconnaissance", Unpublished, May 1976.

(Assessing Department), market values (1975 sales data), and aggregate assessment/full value ratios--several wards show unbelievable ratios requiring further analysis; some sales price data can hardly be considered typical. Moreover, operating data, including data on net income useful for calculating market values based on income capitalization which might then be compared with available sales price data, have not yet been made available by the Boston Rent Control Administration Office. The latter agency did, after considerable pressure, finally agree to punch and analyze requested data for review by project staff.

Upon the initiative of the Assessing Department, to assist it in abatement litigation, outside consultant services were engaged to computerize available real estate sales data for 1971-74 and 1976 to supplement the computerized data for 1975. Although funds ran out before the 1976 data could be completed, what has been done under this $16,000 contract enriches the data base available to the tax policy project.

The timetable for completing the data base has obviously fallen behind, mainly because of the unanticipated staff demands attributable to ARLAG. Since the expansion of the analytic model and the testing of tax policy applications depend on the timeliness and richness of the detailed data base as originally conceptualized in the project design, this lag must be overcome if the project is to achieve its targets within a reasonable time frame. On the other hand, as the

reporting period ended, it had become apparent that if the tax policy project were to keep abreast of and coordinated with pending tax policy deliberations and negotiations, it had to slow down and revise its work schedule accordingly. Many of these pending decisions, already discussed in this report, are closely related to the gubernatorial election of 1978 and the tax policy commitments it generates, the constitutional amendment for property classification to be considered by the voters in November 1978, the governor's budget proposals and legislative action during 1978 on short-term property tax relief, state administrative and court pressures during 1978 to implement revaluation.

Peer Group Review

The Management, Finance and Personnel Task Force of the Urban Consortium/Public Technology, Inc. conducted its first review of the tax policy analysis and planning project on October 3-4, 1977. The five-person team* that made the two-day site visit transmitted its review report dated December 9, 1977. Below are selective quotations from the report that represent a synthesis of the Peer Group's

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*Charles Miller, Chairman, Manager of Maricopa County, Arizona; Robert Cowen, Assistant Director, Office of Management and Budget, Seattle, Washington; Dr. Dean Vanderbilt, Director of Management Services, Dallas, Texas; Carol Whitcomb, Staff Director, Management, Finance and Personnel Task Force, Urban Consortium, Public Technology, Inc., Wash., D.C.; Chris Tomasides, Management Director, City-County of Denver, Colorado.

preliminary comments and conclusions:

> The Peer Review group was most impressed both with the high quality of staff expertise and the apparent level of commitment to the project by the Mayor, the Project Director, and staff. The Project Director, who is eminently qualified for his position, is commended for bringing together an expert staff representing the disciplines necessary to accomplish the work program of the study.
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> .....
>
> Having recognized the value of this study for Boston's purposes, the Peer Review group wishes on the basis of one meeting to sound a cautionary note on the relative importance of project transferability. The Group remains interested in and positive about potential for transfer of many of the project's elements.....but notes that Boston's study should and must tailor solutions to a critical and deteriorating situation facing Boston. We would hope the Federal funding agency's concerns for transferability are tempered by these comments.
>
> .....
>
> The information relative to the problems associated with the property tax, the process of developing some of the alternatives and the impacts of these alternatives will be useful to other jurisdictions. Further, the following may be useful to other urban jurisdictions as case studies: analyzing taxing properties of the Massachusetts Port Authority; evaluating the effects of the comprehensive tax package of the Massachusetts Taxpayers Foundation, including its redistribution formulas; and establishing a model for transferring functions such as courts to the state.
>
> .....The Peer Review group was unanimous in its opinion that the techniques being developed to project the impacts of alternative tax policies, including changes to

the existing property tax, should be useful. .....

.....

The peer Review Committee does not visualize any immediate transfer potential of the techniques for establishing an "equilibrium" property value. At best this approach might have some transfer potential in the long term. .....

.....But we should note that on the basis of staff reports, the Peer Review group somewhat questions the reliability of the output of the equilibrium technique for predicting property values in Boston because of the extremes in dispersion that exist in the assessed versus market values of properties.

The Peer Review group also had reservations as to advisability of implementing an assessment program using the equilibrium technique. .....considerable difficulty will be encountered in administering a program which is predicated on projected property values that could very well not materialize within an acceptable tolerance.

.....

.....the extensive experience Boston has had, in using abatements, to provide incentives for economic development and growth can provide valuable information to other jurisdictions on the potential effects of such a program.

.....

In summary, it is the Peer Review Committee's opinion that the specific models developed in Boston will not likely be directly transferable, because Boston seems to represent a situation of extremes in tax inequities and burden, but the approaches and process that will be used have significant potential for transfer. .....

.....

A great deal of effort must yet be done to improve the assessment function in Boston. .....many of the recommendations of the Jacobs Company have yet to be implemented. Too, the group has concern that approximately 75% of the assessor's office effort is spent processing and administering abatements on a continuous basis. .....

.....The Panel would suggest that substantially more emphasis be made to improve assessment practices; otherwise, Boston will clearly be in a difficult position to implement any systematic valuation policy, whether it be 100% revaluation or valuation based on classification. .....

.....

.....the tax policy issues in the study, as well as the study's goals and objectives, do not seem to have been widely communicated to the City staff and to the public. It is suggested that such information be communicated as early as feasible through the information panels presently being formed as well as any other means seen appropriate by the project and Mayor's staff. .....

.....

It is also suggested that possible fall-back positions be considered should Boston's tax plan run into insurmountable difficulties in the State legislature, the courts, or from voters in a referendum. Consideration could be given to such items as homestead provision in helping reduce the burden of the property tax.

.....

The Peer Review group was favorably impressed by the spirit of cooperation that the Academic Committee and the City Policy Committee showed in providing not only

> strong support, but also making a significant contribution to the tax policy planning study research. ... .in this instance, the academics are serving as an important resource from which other jurisdictions can learn. It is the opinion of the Peer Review group that this type of relationship works best when specific issues are identified by city officials to which the academic community can respond specifically.

FINAL MONITOR REPORT
TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph S. Slavet
Project Monitor

July, 1978

HUD Research Grant H-2628-RG

Boston Redevelopment Authority
Research Department

Kevin H. White, Mayor
City of Boston

Robert Ryan, Director
Boston Redevelopment Authority

Alexander Ganz,
Research Director and
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Boston Redevelopment Authority
Board of Directors
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James K. Flaherty, Ass't Treasurer
James E. Cofield, Jr., Member
Kane Simonian, Secretary

Introduction

In view of HUD's decision to extend the tax policy action-research demonstration in Boston for another year, this final report of the project monitor is essentially a summary of documented experience and impact during its first 18-month phase (January 1977-June 1978). It draws mainly on findings and observations contained in the prior monitor reports, covering progress during the 1977 calendar year, on documents generated during the first six months of 1978 and on periodic interviews conducted with principal project actors.

Project Goals and Methodology

The project has adhered closely to the mandate in the letter of award from the U. S. Department of Housing and Urban Development (HUD) to the Boston Redevelopment Authority (BRA)--"to develop and implement a policy planning model for evaluating the structure and tax administration modifications in connection with the revaluation of properties within the City of Boston".[1] Moreover, conduct of the project has been consistent with the redesigned methodology, the intent of which was to broaden the scope of the planning/analytical process, thereby providing greater promise that

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[1] Letter of September 24, 1976 to Robert T. Kenney, Director, BRA, from Charles J. Orlebeke, Assistant Secretary for Policy Development and Research, HUD.

the overall strategy and selective components might be useful and even transferable to other states and cities. According to the revised study focus submitted by the BRA and approved by HUD, the project was

> .....to develop measures of the impact of assessment revaluation and tax policy alternatives on tax burdens, property values, owner equity, property turnover, property maintenance and quality, the potential for abandonment, private investment in existing and new properties, property tax revenue and rates, and business activity.[2]

Abandoning its original dependence on a particular computer model with questionable potential for transferability, the project redirected its strategy to

> .....focus principally on the analysis of the principal tax alternatives, their impacts and burden shifts, their role in broadening the City's revenue base and reducing the role of the property tax, and the potential for lessening the impact of revaluation on home-owners, renters and other property owners.
>
> A key aspect of the study centers in testing alternative ways of reducing property tax levies, in terms of assessments and rates, to achieve reduction of disparities while lessening disincentives for residential investment.[3]

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[2] Research Department, BRA, "A Prototype Effort in City Tax Policy-Analysis and Planning: The Boston Case", Revised Study Focus, with HUD Research Grant H-2628-RG, April, 1977, p.1.

[3] Idem, p.3.

Process Expectations

Key actors in the project identified two systems changes that they hoped the project process would generate: (1) development of an on-going analytical capacity in tax policy at City Hall, buttressed by an adequate data base and professional ability to dissect tax options generated by opportunities and events; and (2) emergence of an interim decision-making mechanism, equivalent to a fiscal policy cabinet, that would evolve eventually into a permanent institution of staff and operating fiscal services.

There is agreement both among tax policy insiders and outside observers of the City's fiscal decision-making processes that the first goal has not only been reached, but to an extent far beyond original hopes and expectations. The City has continued to support the tax policy analytical staff with its own resources even after HUD project funds had run out by mid-March, 1978, and an appropriation of $200,000 for the 1978 fiscal year was authorized by the City Council to pay for the newly-established Office of Fiscal Services under jurisdiction of the Deputy Mayor. The 1978-79 City budget includes a similar appropriation. These are evidence of the commitment to continue and strengthen the analytical capacity in tax policy. Moreover, the growing need to prop up budding educational campaigns in support of property tax classification, state aid/cost shifting legislation and property tax relief has added unanticipated importance

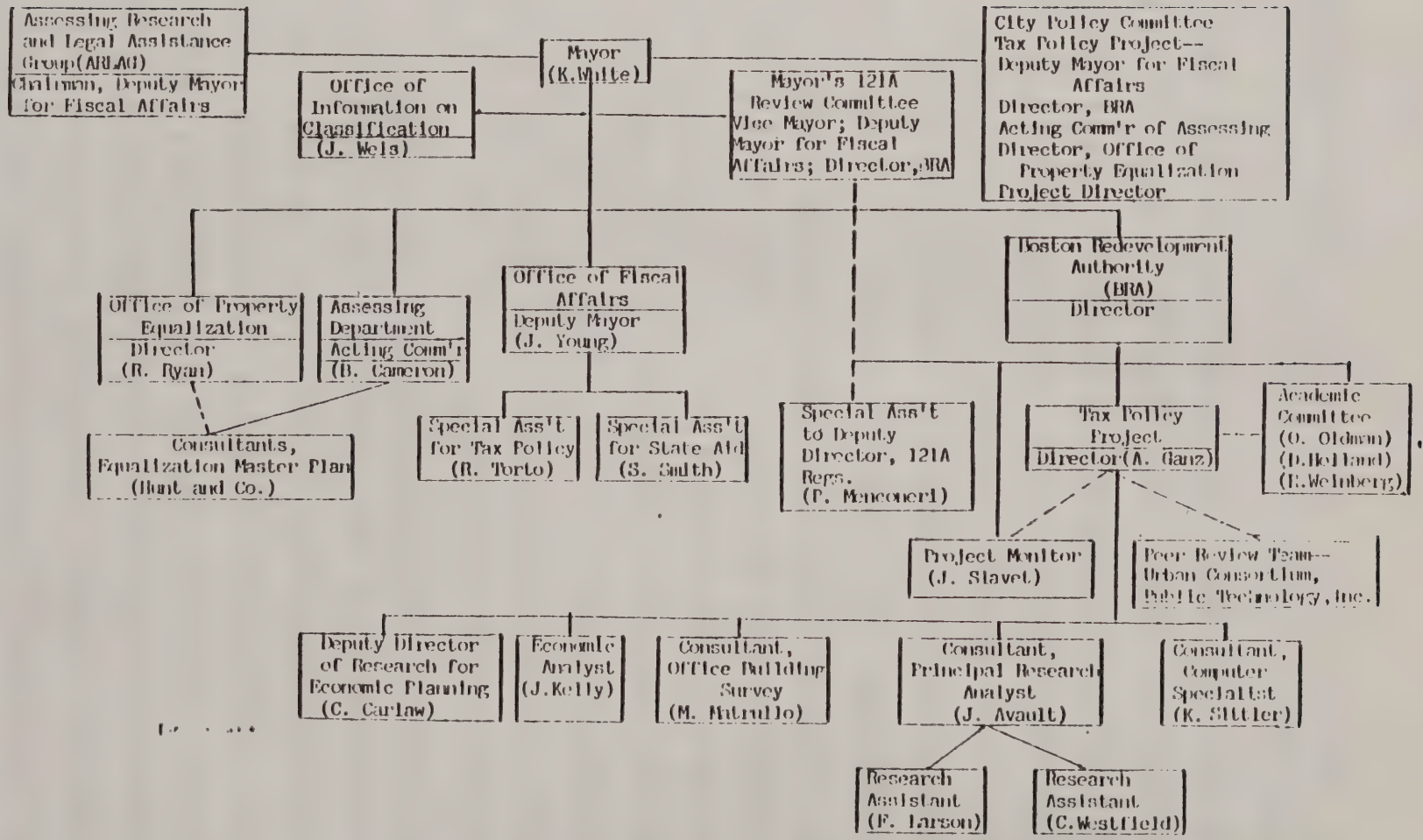
to the work of the tax policy staff initiated under the HUD project.

On the other hand, tax policy insiders and outsiders acknowledge that while there seems to be steady improvement in the quality of fiscal policy decisions, there has been no significant change in how such decisions are made; that current executive style has not encouraged a comprehensive, long-range, orderly approach to fiscal planning and decision-making. It is still too early to determine, for example, whether newly-established linkages between tax policy and physical development policy, a process nurtured by the tax analysis project, will be the precedent for closer ties between tax policy and such interdependent decision-making areas as fiscal planning, equalization, property assessment/abatement policy, operational budgeting and community development programming.

Project Organization, Management and Communications

The accompanying chart shows the organization structure and working relationships of the project at the close of the grant period. No distinction is made between units and staff financed from the HUD grant and those making tangible contributions to tax policy project goals and objectives, but otherwise financed. Perhaps the most significant comment to be made in reviewing the project's operating

TAX POLICY PLANNING/ANALYSIS PROJECT--
ORGANIZATIONAL STRUCTURE AND WORKING RELATIONSHIPS


Assessing Research and Legal Assistance Group(ARLAG)
Chairman, Deputy Mayor for Fiscal Affairs
Mayor (K.White)
Office of Information on Classification (J. Wels)
Mayor's 121A Review Committee
Vice Mayor; Deputy Mayor for Fiscal Affairs; Director, BRA
City Policy Committee
Tax Policy Project--
Deputy Mayor for Fiscal Affairs
Director, BRA
Acting Comm'r of Assessing
Director, Office of Property Equalization
Project Director
Office of Property Equalization
Director (R. Ryan)
Assessing Department
Acting Comm'r (B. Cameron)
Office of Fiscal Affairs
Deputy Mayor (J. Young)
Boston Redevelopment Authority (BRA)
Director
Consultants, Equalization Master Plan (Hunt and Co.)
Special Ass't for Tax Policy (R. Torto)
Special Ass't for State Aid (S. Guth)
Special Ass't to Deputy Director, 121A Regs. (P. Mancuneri)
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environment is to note the steady expansion of its network of interest and affiliation. As project staff are drawn into more demanding roles of both short-term and longer-range duration on tax issues of relatively high priority--abatement litigation, tax policy on new construction, state aid options, property tax classification, property tax equalization, property tax limitation--and the timeliness and quality of the staff response draws both favor and recognition, there is a growing tendency for the scope of the project's services to expand and for the dependence of City officials on the project for data collection and analysis to increase substantially.

The chart does not show information panels, originally planned to provide supplementary information on sectors of the property tax base where available data are limited, and/or where expert advice is needed on tentative assumptions concerning relative market values, tax burdens and classification/revaluation impacts. Once the data base for older commercial buildings, retail trade properties and the investor-owned residential sector is in more complete shape, the convening of such specialized panels will be more timely and more useful. Meanwhile, the assistance of specialized groups has been solicited mainly on an informal, individual expert basis rather than through carefully organized informational panels. Moreover, once the classification amendment

election result is determined (November, 1978), the climate will be more favorable for using the talents of such specialists on complicated issues of property tax equalization and property tax relief.

Although not as heavily involved as the project design proposed, the City Policy Committee and Academic Policy Committees have carried out roles substantially in accordance with their original definitions: identifying tax policy issues for project testing; and serving, on request, in a variety of technical assistance capacities.

The Peer Review Team made two on-site visits during the project period--October 3-4, 1977 and June 15-16, 1978. The comments and observations of the first review were generally favorable, suggesting a realistic expectation as to the project's potential for transferability to other jurisdictions and centering major criticism on the City's failure to improve its assessing practices.[4]

One of the underlying strengths of the project is its leadership. Project management has insisted on high quality for its technical work and has been adept in bridging the project's information / analytical capabilities and outputs with the needs of City officials responsible for giving the Mayor advice on tax policy. Project management

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[4] See p.25-28, "Third Project Monitor Report", for summary of first Peer Review Report.

has also effectively tapped on-going work of the BRA's Research Department e.g. the office building survey, and of the BRA's Development Department, e.g. Rules and Regulations Governing 121A Developments, as collateral sources of information and analytical staff to enrich the overall capacity of the tax policy project. Moreover, the close working arrangements between the staff of the tax policy project and the two Special Assistants to the Deputy Mayor for Fiscal Affairs, nucleus of the newly-established Office of Fiscal Affairs, made it possible to carry out required analysis and research in connection with property tax classification and proposals for allocating the state's 1978 revenue surplus, estimated as $350 million, to property tax relief and other purposes.

Project Data Outputs--Marshalling and Improving Tax/Fiscal Data Base

The project has generated two principal data files: (1) A Boston-oriented data base, designed primarily to predict the potential impact of impending revaluation of property in Boston -- to determine the current value of taxable property; to identify and measure the shifts in tax burden that 100 percent valuation would generate, that various alternatives for a property classification statute would generate and that the finally-enacted classification law would generate; and to estimate how market values might

be affected by shifts in tax burden stimulated by classification and/or revaluation; and (2) A statewide municipally-oriented data base, showing for all cities and towns in Massachusetts, except those with assessments at 100 percent of market values, data similar to the information in the Boston data base, although not as detailed, and designed primarily for the orientation and education of municipal leaders and potential voters who may cast ballots in the November, 1978 election on ratification of the constitutional amendment authorizing property classification.

Review of the Boston data outputs at the end of the project period indicates a mixed record of development and refinement of essential data base components. The information gathered on one to three-unit residential structures and condominiums is the most complete and reliable, reflecting an early and ongoing project priority and emphasis.[5] Since the Assessing Department's own files, particularly sales data, on this important category of the tax base (accounting for over one-third of the City's real estate values) were rather skimpy, the achievement of this data output objective has both short-term and long-term

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[5]See "Second Project Monitor Report", Nov. 1977, p. 1-5, for a description of summaries of data base management system and information components for residential structures with 1-3 dwelling units.

benefits. Project staff have not, however, de-bugged available market value data on apartment houses, nor have they been able to secure operating data, including net income, for this category from the Boston Rent Control Administration office. The most useful available source of apartment house sales data may be real estate sales information for 1971-74 and 1976 (first six months) computerized under contract by an Assessing Department consultant firm .

For the single largest category of real property in Boston's tax base -- commercial real estate -- with an estimated aggregate market value of $1.7 billion, the collateral in-depth survey of downtown office buildings has been an invaluable source of project data. Three separate but carefully conducted studies undertaken as part of this special effort -- building inventories, office managers' survey and office tenants' survey -- have generated comprehensive and detailed information on four classes of downtown office buildings, grouped according to quality, as described in prior Project Monitor Reports.[6] The final phase, the office tenants' survey, has not yet been completed, but will provide supplementary data on tenant operating costs, office space absorption rates,

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[6] See "First Project Monitor Report", Sept. 1977, p. 10-12; "Second Project Monitor Report", Nov. 1977, p. 5-9; and The Office Industry Survey, Sept. 1977, Interim Report, Research Department, Boston Redevelopment Authority.

employment according to Standard Industry Classification (SIC) and according to allocation (square feet per worker per SIC), gross area by SIC, lease expiration data by SIC and market rents, residency of office workers, perceptions of various office building areas, and locational advantages by SIC. Among the information useful to the tax policy project generated by these special surveys are the average capitalized values for class A, B and C office buildings and capitalization rates for a sample of office building sales.

Despite the comprehensive nature of the office buildings surveys, they do not provide information on office buildings and mixed-use properties containing office space that are located outside of downtown Boston. Other data gaps not yet filled include information on mixed-use residential/commercial properties, industrial properties and such specialized commercial properties as retail stores, hotels and warehouses. The shift toward a statewide data base orientation during the last six months of the project period has meant a lower priority for rounding out the remaining data requirements for the City of Boston itself, as delineated in the original project design.

Most of the data collection activity since January, 1978 has concentrated on development of a statewide

municipally-oriented data file known as MASSTAX. Covering 241 cities and towns whose assessed valuations are not recognized as complying with the 100 percent market value statutory standard and for which data were available, MASSTAX includes the following information by municipality--assessed values, equalized values and number of taxable parcels for 10 categories of property (one-family homes, two-family homes, three-family homes, apartment properties, mixed residential/commercial, commercial, industrial, agricultural/horticultural, vacant land and personal property).[7] In addition the file contains data on property tax levies for the 1978 fiscal year, population statistics derived from U. S. Census Bureau estimates for 1975 and U.S.

7Assessed values are figures reported officially by municipal assessors for 1978 fiscal year to State Department of Corporations and Taxation. Equalized values are estimates for July 1, 1978 based on data in the 1978 equalization survey by the State Department of Corporations, covering property sales and appraisals for the 18-month period ending July 1, 1977. The survey data were adjusted to reflect an annual growth rate of 8 percent. For Boston, the estimates were drawn from the 1978 equalization survey (for apartment house properties), the 1975 sales transactions (for one, two and three-family homes) compiled by the tax policy project and the 1976 equalization survey (for all other categories). Those estimates pertaining to July 1, 1976 were inflated for two years of growth, or by 16 percent. The data on numbers of real estate parcels are for the 1976 fiscal year. Although somewhat out of date, they are useful only for estimating average tax bills and do not affect the calculations of aggregate and percentage tax changes. From Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts: Part I , Prepared for Massachusetts Mayor's Association, June 14, 1978, Raymond C. Torto, Appendix IV.

Census Bureau income figures for 1974, adjusted for growth to 1977.

To determine the relative reliability of the available data on equalized values extracted from recent equalization surveys conducted by the State Department of Corporations and Taxation, several special studies were conducted: (1) analysis of changes as between the 1974 and 1976 surveys, and as between the 1976 and 1978 surveys; (2) review of survey methodology and assumptions; and (3) comparison of predicted tax bills based on 100 percent valuations as determined by the 1976 equalization survey with actual 1978 tax bills in a sample of 32 towns that shifted assessments to 100 percent valuation during the 1976-78 period.

The conclusions of these data tests were as follows:

(1) Although the average increase in total equalized values as between 1976 and 1978 was 11 percent, divergent trends for property categories in a generally inflated real estate market raised questions about data reliability. While the aggregate values of single and two-family homes and vacant land appreciated in accordance with general real estate market trends, the equalized values of apartment houses, mixed-use residential commercial properties and industrial properties showed declines.

(2) The determination of equalized values in the state surveys is based on several methodological shortcomings;

(a) Sample Size problems--of the sales information used to estimate market value in 1978, 89 percent covered single-family homes, two-family homes and vacant land (appraisals are not used for making equalized value estimates for these classes of property); only 3.3 percent applied to sales of commercial and industrial properties; moreover, 90 percent or more of the real estate sales in municipalities below 25,000 are single-family homes and vacant land; the number and percentage of commercial and industrial property sales are small; whether the samples are representative is one issue; another is that the degree of dispersion around class averages may also affect the validity of the state equalized values; (b) Determination of values for personal property -- there are methodological questions about the two major categories of personal property: "certified" personal property (gas pipe lines, machinery, poles, wires, underground conduits wires and pipes of telephone and telegraph companies) - the equalized values for this category are generally conceded to be on the low side; "other" personal property - all other non-exempt "goods, chattels, money and effects", consisting mainly of non-certified items of personal property owned by utility companies - the assumption in making this estimate is based on the so-called composite real-personal property value ratio, i.e. if the assessment

composite ratio is 35 percent, the A/V ratio for personal property is fixed at 50 percent, a procedure that assumes personal property to be assessed at higher ratios than real property.

(3) According to the comparative analysis, the "predictability" of the equalized value data is not very good. Although the differences between predicted and actual 1978 tax bills on single-family homes were relatively small (an average error of $40), the margins for other classes of property were quite wide, ranging from 26.3 percent on personal property to 138 percent on agricultural/horticultural property. It should be noted, of course, that the sample covered 32 small, primarily residential towns with a large sample of sales data on single-family homes and only limited sales data for other categories of property. The relatively large sample of single-family home sales absorbed the error predictions on other classes of property.[8]

Tax Policy Issues Analysis

The focus of 1978 tax policy choices was shaped by the disappointing experience with the 1977 legislative package of municipal revenue diversification applicable to Boston. Also dictating the nature and direction of 1978

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[8] Idem, Appendix III, pp. 45-48.

tax policies were mounting tax abatement litigations and state administrative pressures on Boston for action to comply with court-mandated revaluation and decisions concerning the substance and enactment of a statute implementing the property tax classification amendment if endorsed by the voters in November, 1978.

Except for a few minor bills with relatively limited revenue/cost reduction significance and the 1978 legislation authorizing in lieu tax payments by the Massachusetts Port Authority to the cities of Boston and Chelsea, replacing a prior year's act of doubtful constitutionality (estimated to generate $3.5 million a year in additional revenue to Boston)[9], the relative failure of the 1977 legislative effort showed the political and fiscal difficulties with such a property tax relief strategy and

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[9] Chapter 332, Acts of 1978, replacing Chapter 949, Acts of 1977. The 1978 act, re-affirming the Authority's statutory exemption from property taxes by virtue of its performance of essential governmental functions, authorized and directed the Authority to enter into agreements with the City of Boston and City of Chelsea for annual payments in lieu of taxes to each city, such agreements to extend at least for five years. Among the factors to be considered in arriving at such agreements are (1) the general level of property taxation; (2) effect of Authority projects, facilities or activities on such city; (3) general economic condition of users or other persons paying tolls, rates, fees, rentals or other Authority charges; (4) needs of Authority to maintain or improve its facilities or projects. The annual payments in lieu of taxes may not exceed the revenue balances after payment of current expenses, maintenance reserves and debt service requirements. The act took effect January 10, 1978.

explained the shift in tax scenario emphasis of City decision-makers in 1978 to statewide, comprehensive financial and cost-shifting assistance -- short-term stop-gap relief in 1978; property tax classification, to maintain current tax distribution/burden patterns among the major categories of property and minimizing intra-category tax redistribution; and more fundamental substantial relief during the 1979-81 period when a new gubernatorial term would be in effect and when the implementation impact of revaluation within categories of property (assuming that classification is authorized) could be mitigated through the allocation of larger distributions of state aid and cost reallocations from municipal government to state government.

(1) Short-Term Property Tax Relief

The role of the tax policy project in connection with stop-gap property tax relief proposals enunciated by the Governor and advocated by various legislators in 1978 was to analyze the relative benefits to Boston of such proposals in light of 100 percent valuation prospects and property tax classification alternatives. When the short-term tax relief choices become a bitterly-contested issue between the governor and legislative leaders -- the governor's proposal, based on a revenue surplus estimate of about $200 million, included $150 million for revised school

aid plus a 4-year phased take-over of net county court expenses,as contrasted with legislative preference for immediate assumption of court costs plus some form of municipal revenue sharing in lieu of additional school aid -- the City of Boston's position was to maintain a low profile, not publicly supporting either position, but pressing both sides for an arrangement of maximum benefit to Boston. The compromise, as finally enacted, was based on a more realistic revenue surplus estimate of over $300 million, and satisfied both sides -- $150 million in additional school aid, immediate assumption of county court costs, and a modest increase in municipal revenue sharing, all of which will generate about $60 million more for Boston in state financial assistance during the 1979 fiscal year. Staff of the Office of Fiscal Services provided valuable technical assistance to legislative leaders in working out the final legislative drafts, and materials on the tax impact of such revisions were prepared by the tax policy project as useful supplements to the evaluations of revenue alternatives.

(2) ARLAG Issues Analysis

There have also been several important developments in 1978 following up activities of the Assessing, Research and Legal Assistance Group (ARLAG) to which tax policy project staff had provided technical assistance, as described

in the Third Report of the Project Monitor.[10] ARLAG'S purposes included coping with the growing number of court challenges to Boston's assessment policies and practices. Of particular fiscal significance, with great implications for the future role of ARLAG, was a recent decision of the Supreme Judicial Court (in the so-called Weymouth case)[11] and subsequent action by the State Appellate Tax Board (ATB) on a number of Boston cases that implemented this judicial opinion. Once the Supreme Judicial Court ruled in the Weymouth case that "a taxpayer has a right to have his assessment reduced so that it is 'proportional to the assessments of the class of property valued at the lowest percentage of fair cash value', Shoppers' World, Inc. v. Assessors of Framingham, supra at 377-378, n. 10",[12] the Appellate Tax Board used this conclusion to establish 26.8 percent as the "disproportionate assessment" in hearing together and deciding a consolidated group of 12 Boston appeals on June 30, 1978.[13] If the ATB were to apply this

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10 Pp. 1-12.

11 Board of Assessors vs. Thomas E. Curtis & Others, Trustees, June 20, 1978.

12 Ibid, p. 12.

13 Norman Tregor, Trustee, vs. Board of Assessors of the City of Boston, ATB Decision and Memorandum, June 30, 1978.

calculation of disproportionate assessment to all Boston appeals pending before it, the concern described in a prior monitoring report, the tax refund consequences could exceed $180 million.[14] According to the memorandum attached to the Tregor decision, however, the ATB noted the special Boston circumstances which dictated against wholesale application of the 26.8 percent standard. On the one hand, the parties to the Tregor case agreed (in paragraph 7 of the Stipulation) that the assessment/value ratio of 26.8 percent (the 1976 ratio for single-family homes determined by the State Department of Corporations and Taxation) should be applied to the ATB determination of fair cash value in order to arrive at the assessed calculations of the appellants' properties "only if the appropriate theory of law is that the petitioners' assessments should be reduced to reflect the assessment/value ratio of the lowest substantial class...." [15]

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[14] "Third Project Monitor Report", Jan. 1978, pp. 8-9.

[15] If the ATB had defined "lowest substantial class" as the assessment/value ratio for all residential properties, not just single-family homes, the abatements granted would have been based on an aggregate weighted ratio (total assessed values divided by total equalized values) of 38.7 percent as contrasted with 26.8 percent, thereby reducing by almost $65 million the estimated cost exposure for appeals pending before the ATB. Moreover, if a citywide average ratio for all taxable property were used, as urged by City of Boston attorneys (see "Third Project Monitor Report", p. 5-9), the assessment/value ratio for 1975 would have been 46.4 percent as compared with 50.2 percent for 1976; either ratio would have reduced by $100 million or more the estimated cost of pending appeals. (From Memorandum of July 7, 1978 to ARLAG from John Avault -- "Further ATB Cost Estimates - Lowest Class: R1($180M) or Residential($116 M).

The ATB Memorandum pointed to the special Boston dilemma in which residential property accounted for the largest number of parcels, but that the aggregate value of commercial/industrial property was about one-third greater than the total value of residential assessments. Thus the ATB concluded:

> To apply the lowest percentage doctrine of Footnote 10 (Shopper's World case) in these circumstances appears to result in reducing the appellant's assessment far below the level of assessment applied to the class of industrial/commercial property which comprises the greater part of the total value of the city. This may result in an undervaluation of the property in a constitutional sense; because the taxpayer would pay less than his share under said Art. 10 (of Bill of Rights of the Constitution of Massachusetts.)[16]

The ATB's Memorandum expressed support for the approach and reasoning used by the Supreme Court of New Jersey in a series of cited cases and in other out-of-state related cases which ruled that appellants were not entitled to have overvalued assessments reduced to the common level of residential property, but only to the common level for all real property, thereby assuring that the appellants pay those shares of the tax burden as if the taxing authorities were faithfully adhering to the clear mandates of statute.[17] Despite this posture, however, the ATB felt

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[16] Tregor vs. Boston Board of Assessors, op.cit., p. 3.

[17] Ibid, p. 4.

'constrained to follow the rule of law set forth in Footnote 10 of the Framingham case and cited in the Weymouth case." [18]

There has been relatively slow movement toward another of ARLAG's goals -- to design and monitor implementation of an equalization plan, in compliance with the court-mandated revaluation directives of the State Department of Corporations and Taxation (legally changed in 1978 to State Department of Revenue). The staff and consultants of the new Office of Property Equalization, consisting of 16 full-time positions and a 1977-78 appropriation of $186,500 reluctantly approved by the Boston City Council, as a transfer from the City's reserve account, has begun to establish contacts with and to use the data sources of the tax policy project, although on a relatively limited basis. While the Superior Court judge, continuing a case pressing for revaluation, indicated satisfaction with progress, as demonstrated by the funding and establishment of the Office of Property Equalization, he also expressed concern over the next year's appropriation to continue operations of this office. Meanwhile, the City's Assessing Department entered into a $98,000 contract on May 30, 1978 with a

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[18] Ibid.

consultant firm to design within a six-month period an assessment system users' manual, the implementation of which would produce equalized real and personal property assessments among all property classes as required by law. Included within this manual, along with instructions for implementation and interfacing with existing City assessment systems, would be the following topics: (1) definition of appraisal process as applied to mass equalization, (2) design of valuation models, (3) data base descriptions, organizations and relationships, (4) computer-generated record, (5) procedures for data collection and computer storage, (6) design of electronic data processing flow systems, (7) specifications for computer programs, (8) administrative requirements for initial and continued operation.[19] On August 3, 1978, the Director of the Office of Property Equalization (R. Ryan) was appointed Director of the Boston Redevelopment Authority, succeeding Robert Walsh.

(3) Property Tax Classification Analysis

The major focus of tax issues analysis by project staff during 1978 was the legislative model to implement voter approval of the constitutional amendment authorizing

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[19] Contract for Professional Services, City of Boston, acting by its Acting Commissioner of Assessing and Joseph E. Hunt and Co., Inc., Nashville, Tenn.

property classification for tax purposes. Once legal questions relating to language of the amendment were disposed of -- whether personal property had to be included within the restriction of "no more than four classes"; the interpretation of the phrase "according to use"; the scope of authorized "reasonable exemptions; whether municipalities could establish their own classes and tax ratios; and the interpretation of how calculations of different assessment/value ratios and/or different tax rates would be made by class -- the analytical activities of the project staff centered on computer tests of alternative classification scenarios followed by detailed evaluation of the impact of 100 percent valuation within the context of the terms of the classification statute being considered and subsequently enacted by the 1978 legislature and signed by the Governor on June 24, 1978.[20]

The high analytical priority given to the classification amendment and bill was, of course, based on the realization that revaluation could be implemented under a carefully drawn property classification system without drastic shifts of property taxes among categories of properties, thereby minimizing the political, social and economic impacts of revaluation. Sensing that a coalition of cities and towns with assessment disparity patterns and revaluation

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[20]Chapter 580, Acts of 1978, "An Act Providing for the Taxation of Real Property by Usage Classification".

consequences roughly similar to those in Boston might be organized around the mutual benefits of a uniform classification model, the Special Assistant to the Mayor for Tax Policy supervised the planning and implementation of computer program tests that compared present tax bills with tax bills based on average assessment/sales ratios for different classes under 100 percent valuation and under a variety of classification mixes. The computer programs also simulated the inclusion of residential exemptions of various scales and the application of equilibrium value assessments. The computer programs analyzed the impacts of these alternatives on different groups of cities and towns. These tests were conducted by the principal research analyst (J. Avault) and the project computer specialist (K. Sittler).[21]

Of primary interest, therefore, was the computer program reflecting the assumptions and substance of the property classification bill filed with the Legislature[22] for implementation of the constitutional amendment if ratified by the voters. The distinctive features of this program were per capita income data, the relationship between

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[21] See "MASSTAX Digest", Feb. 9, 1978, a memorandum from John Avault to the Tax Policy Study Group cataloging and describing the reports that resulted from these program tests.

[22] H. 1900.

income and the current property tax levy (tax levy as percent of income), and impact on tax levy of simulated increases in state aid. For Boston and groups of municipalities, the program analyzed the overall impact and the impact on each of 10 property classes -- both the initial and equilibrium impacts -- calculated from the final classification scheme, residential exemption and assessment equalization within each property class.[23]

The following three applications of the above computer program were carried out in anticipation of tax policy issues that would affect the final version of the classification statute and property tax relief proposals: (1) An application in which the assessment ratio for personal property was estimated as 100 percent; that is, the current state-established equalized valuations were used as the market value total; (2) an application in which personal property was held harmless at 85.6 percent; that is, the actual assessments of personal property to state-established equalized valuations was used as the assessment/value ratio; and (3) an application in which personal property was held harmless at the above ratio and additional state aid of $300 million was simulated, to be distributed according to the lottery receipts formula (based on per capita equalization index).

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[23]This computer program is known as MASSTAX 7.

Except for late-hour amendments affecting the real and personal property of electric and gas utility companies, the substance of the originally filed classification bill remained intact. As finally enacted, the classification statute requires local assessors to classify all taxable real property according to the following uses -- class 1: all real property and improvements thereto, used or held for use for residential purposes; class 2: all real property and improvements thereto, used or held for use for commercial purposes; class 3: all real property and improvements thereto, used or held for use for industrial or manufacturing purposes; and class 4: all open space property, upon approval of an application by the local assessors.[24] According to the statute, in determining the taxation of non-exempt real property, local assessors shall apply the following percentages to the fair cash valuation of such property: class 1 - 40 %, class 2 - 50%, class 3 - 55%, class 4 - 25%. Moreover, the statute exempts $5000 of the taxable valuation of residential real property, not more than one such exemption being allowed to any one residential parcel. This exemption is in addition

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[24] Section 5, Chapter 59A of the General Laws, as amended (Section 38, Chapter 580, Acts of 1978).

to those already granted to certain categories of home owners (disabled veterans, widows, indigent, etc.), except that the taxable valuation of such property may not be less than 10 percent of fair cash valuation.[25]

Under the classification statute, local assessors are required to "determine the fair cash valuation and classification of real property" and to "secure an equitable and uniform valuation of all real property situated in the same class".[26] Finally, the new law on classification exempts all real and personal property of electric and gas utility companies from real and personal property taxes and makes them "subject to a local excise for the privilege of doing business in a city or town".[27] In computing this excise tax, the local assessor is required to multiply the current tax rate by the amount of the assessed value as determined by the State Tax Commissioner and to determine the current assessed value by multiplying the current net book value of such utility property, as certified by the State Department of Public Utilities for rate-setting purposes, by an excise assessment factor computed according to the following formula:

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[25] Section 18, Chapter 59A of the General Laws, as amended (Section 38, Chapter 580, Acts of 1978).

[26] Sections 3 and 4, Chapter 59A of the General Laws, as amended (Section 38, Chapter 580, Acts of 1978).

[27] Section 19A(Chapter 59A of the General Laws, as amended (Section 38, Chapter 580, Acts of 1978).

$$F = \frac{AVU}{CVU} \times \frac{CVN}{AVN}$$

As used in the above formula the following letters have the following meanings:-
F, excise assessment factor;
AVU, actual assessed value for 1978 fiscal year, as finally determined under appeal procedures of all real and personal property of utility companies within the city or town.
CVU, fair cash valuation for 1978 fiscal year (net book value as certified by the department of public utilities for rate making purposes) of all real and personal property of utility companies within the city or town.
CVN, taxable valuation for 1978 fiscal year of all real and personal property of non-utilities within the city or town after classification and exemption in accordance with the applicable sections of the new classification statute.
AVN, actual assessed value for 1978 fiscal year of all real and personal property of non-utilities within the city or town.[28]

Follow-up analysis by tax policy project staff of the implications of the amendments substituting a local excise tax for real and personal property taxes of electric and gas utilities emphasizes the relative importance of the definition of "net book value" of utility property. In 1978 the electric and gas utilities were billed by the City of Boston for $162.9 million in property taxes, 9.3 percent of the total tax levy. The analysis noted that changes in the utilities' share of the overall property tax burden were linked entirely to changes in book value and the combined tax levy. Therefore, with no expansion of facilities, utilities' book value and tax share would

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[28] Ibid.

decline as a result of depreciation. A basic tax issue is that the market value of utility property could increase while the book value declines.[29]

(4) Office Building Values and Taxes

A special analysis of market values and relative tax efforts of newer office buildings (Class A) in downtown Boston has yielded the following conclusions:[30]

1. Their average economic value is $47.08 per square foot; their average property tax, $2.08 per square foot.

2. The above figures are equivalent to an assessment/value ratio of 17.5%, an effective tax rate of 4.4%, and tax bills calculated at 20.5% of gross income.[31]

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[29] "The Wheaton Utility Excise Formula", July 21, 1978, Memo from John Avault to Raymond G. Torto; Addendum to Memo July 21, 1978, "A Numeric Example of Changing Utility Tax Share in Response to Changing Book Value", July 24, 1978.

[30] John Avault, "Values and Taxes of Boston's Newer Office Properties: Effects of Tax Letter Agreements", June 30, 1978, Memo to Tax Policy Group. Also see John Avault, "Translating Measures of Commercial Property Tax Effort: Percent of Income, Assessment/Value Ratio, Effective Tax Rate, Tax Per Foot", July 11, 1978, Working Notes for the Tax Policy Study Group. Analysis based on data in "The Office Industry Survey", Michael Matrullo, Interim Report, June 7, 1977, Research Department, Boston Redevelopment Authority and unpublished Assessing Department data. See "First Project Monitor Report", p. 10-12, "Second Project Monitor Report", p. 5-9, and "Third Project Monitor Report", p. 22.

[31] Value estimate based on income capitalization procedures.

3. If taxed at the citywide average,[32] taxes on these properties (estimated at 70 with annual tax obligations exceeding $40 million), would increase by $18.6 million or 46.6 percent, representing a tax rate saving of over $11. (Citywide assessment/value ratio - 31 percent; citywide effective tax rate - 7.8 percent.)

4. The increases would raise the tax level of such properties to 29.9 percent of gross income.

Analytical Consequences

1. Property Tax Classification

The tangible product that, to date, most clearly demonstrates the analytical utility of the tax policy project is the report entitled Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts,[33] which was prepared with the technical and computer assistance of project staff and which acknowledges the special contribution of John Avault and Karl Sittler to this effort. The conclusions of the report may be summarized as follows:

1. Residential property in Massachusetts will be better off under the classification amendment and its implementation statute than under 100 percent valuation.

2. Under 100 percent valuation, property taxes on single-family homes throughout Massachusetts would increase on the average by 17 percent, the most extreme impacts

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[32]Derived from MASSTAX equalization analysis.

[33]Raymond G. Torto, Part I, Prepared for Massachusetts Mayor's Association, June 14, 1978.

occuring in the older, larger industrial cities and towns which have most of the state's multi-family housing and non-residential property. Under the proposed classification law, residential tax bills would remain on the average within a few percentage points of their current levels.

3. Classification, preventing the shift of taxes being paid by business properties to homes, is the first step in a two-stage program of property tax relief. The second step, achievable only through tax reform by state legislative action, is statewide property tax reduction. Property tax reduction without classification means lower tax bills for business properties, not for homes.

2. Short-Term Property Tax Relief

As previously indicated, the tax policy project played important roles in evaluating the impacts of bills that finally culminated in the 1978 package of stop-gap property tax relief. The Commonwealth's general appropriation statute for the 1979 fiscal year contained $633.5 million for so-called Chapter 70 school aid distributions, including replaced grant programs (vocational education, bilingual education, special education, etc.), as compared with total reimbursements of $483.5 million for these same purposes during the prior year, an increase of $150 million. Boston's share of this new comprehensive program of school aid during fiscal 1979 will be $87.5 million, $24.5 million

more than in 1978, and 13.9 percent of the statewide total distribution, as contrasted with $63.0 million, or 13.0 percent of the state total in the 1978 fiscal year.[34]

The state's general appropriation statute for the 1979 fiscal year also included an appropriation reserve of $88 million to cover the Commonwealth's share of the net costs of county courts as determined by the State Commissioner of Administration and verified by the House and Senate Committees on Ways and Means. This appropriation reserve, triggering an immediate take-over of county court expenses by the state, will be distributed to the 14 counties in proportion to their shares of court expenditures for the 1977 fiscal year. Suffolk County's share (benefitting Boston, which finances all Suffolk County costs) is estimated at $26.2 million, or about 30 percent of the total.

The above legislation was the collateral financing mechanism to a basic measure drastically reorganizing the state's judicial system and entitled "An Act Providing for the Orderly Administration of Justice in the Commonwealth".[35] This so-called court reform legislation not only required that operation and maintenance of the judicial branch be

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[34]Chapter 367, Acts of 1978.

[35]Chapter 478, Acts of 1978.

paid by the Commonwealth but also provided that all court fees, fines and other county court income be paid into the state's general fund and that buildings and space occupied by courts and owned by counties be rented from such counties.[36]

The third major component of the stop-gap tax relief program was a supplementary state aid distribution of $30 million based on the lottery distribution formula, which was in addition to the regular allocation of lottery receipts. This action, enacted through the state's supplementary appropriation act for the 1978 fiscal year,[37] meant another $5.3 million for the City of Boston.

3. New Policies Governing Taxation and Development of Limited Dividend Projects

Final approval by the Boston Redevelopment Authority of rules and regulations governing so-called Chapter 121A projects in the City of Boston represented a major step in the continuing effort to update conditions applicable to the granting of limited dividend status and special tax arrangements, including more realistic immediate and future tax revenue payments from such developments.[38] The new rules and regulations are designed to encourage new construction

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[36] Ibid, Section 12(Chapter 29A of General Laws, "Financing of the Judicial System").

[37] Item 1599-2100, Chapter 442, Acts of 1978.

[38] See "Second Project Monitor Report", pp. 14-18, and Third Project Monitor Report", pp. 21-22.

but with greater tax returns than under former terms and to tighten up the entire 121A application and approval process.[39] They also provide for more effective monitoring of such developments once they are completed. The new regulations require more detailed information about applicants. They demand more detailed documentation and evidence that the proposed area meets statutory standards of "blight" and "decadence". Finally, the new rules mandate more detailed financial information about the proposed development and the applicants, including a letter of firm commitment as to project financing before filing of the application. In fact, the Mayor's Tax Review Committee and the applicant must have settled on a tax agreement prior to convening of a public hearing on the 121A application. The BRA will be responsible for monitoring the project, including the possibility of audits, to ensure that tax payments are made as required by the agreement. Other provisions of the rules and regulations require affirmative action and hiring preference to City of Boston residents during project construction and operation.

During the seven months between the date of the Mayor's

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[39] "Boston Redevelopment Authority, "Rules and Regulations Governing Chapter 121A Projects in the City of Boston", June 22, 1978; "Boston Redevelopment Authority Handbook, Staff Review of Chapter 121 Proposals"(Undated).

lifting of the moratorium on 121A tax agreements (November 21, 1978) and June 30, 1978, ten 121A tax agreements have been approved by the BRA generally in accordance with terms based on the new rules and regulations and as summarized below:

Project Type and Identity	General Terms	Tax Terms
A. Residential, HUD Section 8 Rental Assistance:	Minimum of 20 Years	
1) Peterborough Street, Fenway (230 d.u.'s-rehab)		10% of gross collect income, including Section 8 subsidies, in first two years; 12% of gross collect income in third year and each subsequent year, increasing by one percent every third year to maxim of 15%; all increase above 12% contingent on HUD funding.
2) Edison Green, Dorchester (96 d.u's)		
3) Mason Place, Downtown Boston (129 d.u.'s)		
4) Schoolhouse 77, Roxbury-Mattapan (118 d.u.'s)		
5) Weld Park, Roslindale (14 d.u.'s)		
6) Mount Vernon, Back Bay (5 d.u.'s)		
B. Market Housing:		
1) Exeter Towers, Back Bay	15 Years	Maximum of 23% of effective gross inco during first 3 years based on 30% for retail, 20% for residential and 35% for commercial parking; thereafter, rate of effective gross inco adjusted in accordan with changes in property tax levy of Ci
C. Commercial:		
1) 175 Federal St. (Financial District)	15 Years	23% of effective gr income.
2) Sanborn Building (Downtown Market District)		30% of effective gross on retail space; 22.5% of effective gross incon on office space duri

Project Type and Identity	General Terms	Tax Terms
		first two years, increasing at pr scribed interval 30% by 7th year continuing at th level through 15 year.
D. Mixed Use:		
Charlestown Navy Yard-- Residential	15 Years	21.75% of effect gross income plu
		25% of net incom
Retail/Commercial		30% of effective gross income.

Peer Group Review

The Management, Finance, and Personnel Task Force of the Urban Consortium/Public Technology, Inc. conducted its second and final review of the tax policy analysis and planning project on June 15-16, 1978. The five-person team[40] that made the two-day site visit transmitted its review report dated July, 1978. Below are selective quotations from the report that represent a synthesis of the Peer Group's comments and conclusions concerning the project's potential for replication, the project's effectiveness, the project's impact, and suggestions for future directions.

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[40] Charles Miller, Chairman, Manager of Maricopa County, Arizona; Robert Cowen, Finance Director, Seattle City Light Co., Seattle, Wash.; Robert King, Financial Economist, Wash., D.C.; Dr. Dean Vanderbilt, Director of Management Services, Dallas, Texas; Carol Whitcomb, Staff Director, Management, Finance, and Personnel Task Force, Urban Consortium/Public Technology, Inc., Wash., D. C.

.....After examining the project work of the last nine months, bearing in mind that processes and broad approaches more than products or specific strategies should be the focus, it is evident that the efforts of the Tax Policy Planning Study can be of interest to a number of urban jurisdictions. The Peer Review Panel was highly impressed with the quality and direction of the research efforts during these past months, with several of these having particular interest.

.....

Boston's difficulties with tax letters of agreement and the Chapter 121A agreements are of interest to other jurisdictions which are seeking greater business investments, but do not want to find the tax burden shifted to residential property. The in-lieu tax payments of these exempt properties, usually specified as a per cent of gross income, were reportedly low due to inadequate information collected and inadequate monitoring efforts by the city. A means to correct these deficiencies would be of interest to other cities with tax incentive plans for commercial and industrial concerns.

.....

.....Meaningful questions include; how can these instruments best be designed to allow for effective administration and accurate audits, and what are some secondary impacts of instruments such as the tax letters.

.....

The Peer Group would also be interested in determining whether the lack of preferential tax treatment has caused locational changes among older office buildings that are paying a higher effective gross income in real estate taxes and thus placed in a competetive disadvantage.....the Group is interested in the much larger issue of

whether the city receives a net benefit or net loss in providing exemptions to commercial and industrial property. How much tax incentive is necessary to attract or maintain businesses in the City?

.....

The Peer Group would also be interested in knowing any strategies developed in dealing with another type of tax exemption-university and college property.

.....The Panel views all these alternatives (classification and revenue) as having potential interest to most jurisdictions. We feel that further exploration of these alternatives would not only be of value to other local governments, but also potentially useful to the city of Boston, especially if property tax classification is defeated by Massachusetts voters. Transferring total or partial responsibility for the delivery of particular services is becoming commonplace among municipalities nationwide.....the Group would be interested in knowing what criteria they select for deciding what functions or components of a function will be transferred and what mechanism was used for transferring the functions.

.....

The Peer Group found the paper written by Richard Syron and Raymond Torto on the incidence effects of broadening the sales tax in Massachusetts, an excellent analysis of an alternative means of generating additional local revenue. The conclusions reached in this paper may spur other jurisdictions to look at the actual economic impact of increased

sales taxes on their residents, rather than simply assuming that this tax would be regressive for poorer residents.

.....

.....Since the passage of the Jarvis-Gann Initiative in California last June, increased attention has been paid to reducing property tax burdens on homeowners. Assessing different classes of property at different established percentages of market value is one means of accomplishing this. Since only eight states have adopted comprehensive classified property systems, (most non-densely populated and all non-east coast) the Peer Review Group sees the Massachusetts experience as being a possible example for states examining the option of a classification system.

.....

In a political context the Group is interested in the strategy which is used to sell the voters on the classified property concept. Observing the public education thrust of the Massachusetts Mayors Association in the face of stiff opposition from the business community, should be relevant to local officials attempting to pass measures which can easily be distorted such as tax reform or home rule provisions.

.....

The use of extensive computer-based data which is being used in the policy-making process was of more interest to the group than the technique and methods used to arrive at this data. The Peer Review Group is particularly interested

in the development and maintenance costs of the data base which will result after the assessment of each parcel of property.

.....

In the last Peer Group Report we mentioned that a great deal of work needed to be done to improve the assessment function in Boston. Unless substantial improvements were made, we think the city would clearly be in a difficult position to implement any systematic valuation policy whether it be 100% equalization or valuation based on classification.....it appears that very little has been done in this nine-month period to remedy the situation. We believe that the anticipated five year period to complete full assessments, even with physical inspections of each piece of property, is excessive. We urge that the highest priority be placed on expediting the equalization process. Recognizing the necessity of a complete, accurate equalization effort with an effective classification system, we perceive the need for the project to become more involved with the assessment/revaluation process.

.....

Since it is agreed that property tax classification is largely a temporary measure.....this Panel is somewhat concerned that more immediate attention has not been paid to other local option revenue sources, or the transfer of particular functions to the Commonwealth for financing. .....these strategies would appear to be desirable whether or not the classification scheme passes.

.....

.....We note with pleasure the close ties developing between the project staff and the academic community, which speaks for the reputation of high quality research produced by BRA Staff.

Finally, the Peer Review Group is favorably impressed by the strong suuport this project has received from City Hall. The willingness of the city to support this project by assuming staff costs in several instances, reinforces the sense of this Panel that the project staff has accurately focused on issues relevant to the City rather than concentrating on research which would not have been as meaningful.

FIRST MONITOR REPORT
PHASE II: TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph S. Slavet
Project Monitor
December, 1978

HUD Research Grant #-2628-RG

Boston Redevelopment Authority
Research Department

Kevin H. White, Mayor
City of Boston

Robert Ryan, Director
Boston Redevelopment Authority

Alexander Ganz,
Research Director and
Tax Policy Study Director

Boston Redevelopment Authority
Board of Directors
Robert L. Farrell, Chairman
Joseph J. Walsh, Vice-Chairman
James G. Colbert, Treasurer
James K. Flaherty, Ass't Treasurer
James E. Cofield, Jr., Member
Kane Simonian, Secretary

Introduction

This monitoring report covers the initial segment of Phase II of the tax policy analysis and planning study—a review of project activities undertaken during the period from July 1, 1978 to November 14, 1978.

Under Phase I, from September 1976 through June 1978, the study focus was on development of a tax/fiscal data base and analytic techniques to facilitate projections of the impact of property tax equalization, including the classification of property for tax purposes, on municipal governments and property taxpayers of Boston and other cities and towns in Massachusetts. Among the significant outputs generated by the study during Phase I were classification mix alternatives to guide drafting of the property classification "shelf" bill (H. 1900, 1978), which was adopted in amended form (Chapter 580, Acts of 1978) by the State Legislature. For Boston the study outputs included estimates of the impacts of 100 percent equalization, classification and tax levy reductions assumed by additional state financial assistance according to category of residential property and ward of the city. Less detailed analyses were made for all other municipalities.

The outputs were used in the educational literature prepared and distributed under auspices of the City's Office of Information on Classification. They were also used in a variety of ways by the Massachusetts Mayors Association, the Massachusetts League of Cities and Towns, and other groups favoring voter approval of the constitutional amendment governing property classification. In addition,

Phase I analysis evaluated the impact on all cities and towns of alternative distribution proposals of anticipated state revenue surplus estimates, documents used extensively by appropriate agencies of the Commonwealth of Massachusetts and by the staff of the Senate Committee on Ways and Means.

Under Phase II, covering a year's analytical/planning work beginning on July 1, 1978, the study emphasis is on the revenue requirements of Massachusetts cities and towns, including evaluation of revenue needs to cope with the impacts of equalization/classification, inflation, current municipal operations and infrastructure improvements. Among the revenue alternatives and impacts being examined are state revenue sharing proposals, a recommendation to link expansion of the state sales tax base with state revenue sharing, and initiative petitions that tie municipal property tax limitations, based on a phase-in approach, to municipal sharing of state revenue growth. Among the analytical perspectives identified in Phase II are projections of the impacts of alternative fiscal solutions on private investment, income potential, and future employment.[1]

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1. From "Current Tax Policy Analyses and Planning, Work Program Elements", September 21, 1978, memorandum from Alex Ganz (Director of Research, BRA) to Robert Ryan (Director of BRA).

Analytical Outputs

1. Impact of Property Tax Equalization

If the Torto report emerged as the definitive evaluation of the statewide impact of 100 percent valuation and taxation by property classification,[2] then the project's follow-up detailed analysis for the City of Boston provided the needed refinement of equalization estimates of average tax changes (both initial impact and equilibrium) by property type under 100 percent valuation and/or classification, and similar estimates for 1 - 3 family residential properties by ward based on assumptions of (a) no state property tax relief, (b) "moderate" tax relief and (c) "significant" tax relief.[3] According to this report, designed to predict tax differences between the alternatives of 100 percent valuation and classification, not to estimate what the specific tax consequences will be, the average impacts of equalization are likely to be as follows:

1. For all types of residential properties, property taxes would be lower under classification than under 100 percent. Such tax reductions are shared widely among categories of residential property while 100 percent valuation would give most tax benefits to business and utility properties.[4]

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2. See Raymond G. Torto, Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts, June 14, 1978

3. John Avault, "Preliminary Estimates of Property Tax Equalization in Boston", BRA Research Department, A Working Paper of the Tax Policy Study Group, Computer Analyses by Karl Sittler, Aug. 1978.

4. Ibid, p. 1-3.

2. Even where "significant" state property tax relief (a 30 percent reduction in property tax levy in addition to relief to offset inflation) is linked to 100 percent valuation, the average property tax bill for single-family residential properties would increase by 8 percent, while property taxes on commercial properties would decline by 34 percent, those on industrial properties by 38 percent, and those on utilities by over 50 percent. Under classification, by contrast, this degree of property tax relief would generate average property tax reductions ranging from 25 to 50 percent for residential, commercial and industrial property. Taxes on apartment houses would decline by an average of 43 percent; on three-decker structures, they would be cut in half.[5]

3. Where more "moderate" state property tax (a 12 percent reduction in property tax levy) relief was assumed, under classification the average tax reductions for single-family homes, commercial and industrial properties are estimated at 10 percent; for triple-deckers, the decline is one-third; for apartment houses the cut is 29 percent, almost equal to estimated experience under 100 percent valuation and "significant" property tax relief. Under 100 percent valuation with "moderate" property tax relief, on the other hand, the property tax reduction estimated for apartment houses is 15 percent, half of the cut under classification. Property taxes on one-family homes would increase by one-third on the average, and taxes on

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5. Ibid, p.3.

three-family structures would remain about the same, despite the "moderate" property tax relief. Tax benefits to non-residential properties, however, would be substantial under 100 percent valuation with "moderate" property tax relief--20 percent lower on the average for commercial and industrial properties and 50 percent lower for utilities, representing the greatest benefit gains.[6]

4. Since equalization per se has no effect on the property tax levy, total or average property taxes remain the same at the most aggregate level because of significant offsetting changes among types of property, e.g. the estimated average increase of 14 percent for mixed residential-commercial properties under both 100 percent valuation and classification, assuming moderate tax relief, is attributable to the combined effects of tax reductions for older properties and increases for larger, new developments enjoying special tax agreements.

Within property categories, however, even 100 percent valuation generates extreme tax and tax change variations. Thus, despite the estimated average increase of 50 percent in property taxes for single-family houses under 100 percent valuation, the average tax bill would decline in three wards (in Roxbury). By contrast, within the three-family residential category, the citywide average tax reduction is estimated at 25 percent and average taxes would decline in 13 wards; in six wards, however, the average tax is expected to increase.

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6. Ibid, p. 3 - 4.

5. The analysis emphasized that underlying average estimates of the tax consequences both of 100 percent valuation and/or classification are wide changes. For example, although the average tax for single-family houses in Charlestown would more than double even under classification, some such properties would have tax reductions and about 25 percent of single-family houses in this area would have their taxes under classification go up by an average of only $150. Properties with relatively low initial assessments and experiencing dramatic increases in market values due to substantial modernization are those facing greater than average tax rises.

2. Impact of 100% Valuation with Property Tax Limits

Another analytical output dealt with the issue of whether a tax limit was an adequate substitute for classification in averting the extreme tax shifts were 100 percent valuation in effect. Using an assumption that a property tax levy limit equal to 2-1/2 percent of market value were enacted along with 100 percent valuation, this analysis concluded that the average statewide tax bill for single-family houses would increase by 13 percent; two-family structures, by 18 percent; and three-family residential properties, by 10 percent. But the most significant changes would come in the larger cities and towns. Municipalities with more than 25,000 population contain 76 percent of the total statewide valuation of commercial properties and 70 percent of the total statewide valuation of industrial property. Thus, with 70 percent of the state's population and with most of the state's multi-family housing stock, these larger communities would

experience the most pronounced shift of property taxes from residential to business property were 100 percent valuation to be enforced within the context of a property tax limitation. Commercial properties in these cities and towns would enjoy an average tax bill decrease of over 20 percent; industrial properties, a decrease of over 30 percent.[7]

Property Classification Amendment Referendum

At the November 7th general election, Massachusetts voters approved Referendum Question #1, the constitutional amendment authorizing the Legislature to establish different classes of property for taxation purposes.[8] Total "yes" votes exceeded "no" votes in 13 of the state's 14 counties, and in all 39 of the state's cities. The margin of approval in the larger communities ranged from a high of 10-1 in the cities of Boston and Everett to a closer vote in cities located outside of metropolitan Boston, such as Leominster and Northampton. Boston "yes" votes totalled 134,080 as contrasted with 12,965 "no" votes. The overwhelming vote of approval in urban areas of the states was matched by lower, but decisive margins of voter support in more

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7. Raymond G. Torto, "Estimating the Impact of 100% Valuation with Tax Limits", Oct. 16, 1978, Prepared for the Massachusetts Mayor's Association.

8. As certified by the Executive Council, the final vote was: yes, 1,285,365; no, 649,400; blanks, 108,111.

homogeneous residential suburban communities.[9]

Municipal Revenue Requirements and Revenue Alternatives

The analytic framework being used by the tax policy project to project revenue needs, to evaluate alternative revenue measures and to measure the potential impact of revenue choices from both a statewide and municipal perspective consists of the following phases:

1. Projections of the state economy, state expenditures and revenues and state surpluses or deficits;

2. Projections of City of Boston economy, municipal expenditures and revenues, and municipal revenue requirements (Boston and other cities and towns); and

3. Projections of effects of property tax levy reductions on investment, income and employment.

1. Projections of State Economy, State Finances and State Surpluses/Deficits

A major source of continuing data and analysis on state economic

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9. An interesting sidelight to the classification referendum debate was the issue of whether City of Boston tax funds could be appropriated for the purpose of undertaking activities in support of the referendum. After an August 23, 1978 opinion of the Massachusetts Supreme Judicial(SJC) Court (in Richard L. Anderson et.al, vs. City of Boston, et.al.) supported the plaintiff's contention that "the city does not have authority to appropriate funds to be expended in support of the classification amendment"... and that the First Amendment to the U.S. Constitution "does not require that the city be authorized to appropriate funds to influence the result of the vote on the classification amendment"...(p. 2302, "Official Opinions from the Supreme Judicial Court of Mass. and the Appeals Court", Aug. 25, 1978, vol. 5, No. 34, published by Mass. Lawyers Weekly, 30 Court Sq., Boston, Mass. 02108), Justice William Brennan of the U.S. Supreme Court, on October 20, 1978, temporarily stayed the SJC order freezing City funds for these purposes. On November 5, 1978, the full court upheld Justice Brennan's ruling, thereby allowing the City of Boston to spend appropriations in support of the classification referendum question, pending the court's final disposition of the Massachusetts SJC decision.

trends, on prospects for state revenue growth and on state revenue surpluses that might be available for municipal property tax relief, is the so-called Massachusetts Economic Policy Analysis Project.[10] Supported with funds from such state agencies as the Legistative Science Resource Office, the Executive Office of Economic Affairs, the Division of Employment Security, the Welfare Department and the Massachusetts Port Authority, the Project maintains a computerized economic policy model consisting of some 200 variables based on two major perspectives of employment—local demand and export demand. Until the recent economic downturn, the Project's analyses had been optimistic, predicting state budget surpluses through the 1979 fiscal year under assumptions of continuing state tax rates and no national recession. Its state surplus projection of over $300 million for the 1978 fiscal year was borne out by actual fiscal experience and the unprecedented increase in state financial assistance to cities and towns.[11] Current official estimates corroborate the Project's recent projections and establish a surplus range for fiscal '79 of $125-175

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10. See George Treyz, The Massachusetts Economic Policy Analysis, undated, University of Mass. at Amherst, with collaboration of Ann F. Friedlaender(M.I.T.) and contributions of Edward N. McNertney(Univ. of Mass.), Benjamin Stevens(Regional Science Research Institute) and Roy E. Williams(Sr. Programmer); also see recent reports generated by this Project—A.F. Friedlaender, G. Treyz and R. Tresch, A Control Forecast with No New Taxes and an Analysis of Alternative Tax and Expenditure Plans for Fiscal 1976 1977, Senate No. 2074, July 14, 1975; G. Treyz and R. E. Williams, "The October 1978 Massachusetts Economic Policy Analysis Model Forecast", undated; G. Treyz and R. E. Williams, "The Impact of Two Recession Scenarios on the Massachusetts Economy and the Massachusetts State Budget", undated.

11. See p. 17-18, "Final Monitor Report", for summary of debate over state revenue surplus for fiscal '78 and its distribution.

million. On the other hand, a recent Project analysis, based on two recession scenarios of the United States economy prepared by Data Resources, Inc. is more pessimistic, indicating "an excess of spending over income of between one hundred and two hundred million dollars in each of the next three fiscal years if state spending is allowed to increase in line with normally expected increases. However, there is some surplus that might be used to cover some excess of spending over income and state spending may be reduced below normally expected increases".[12] Thus, neither recession scenario projection is likely to have a negative impact on state revenue through the 1979 fiscal year and policy modifications on expenditures by the incoming state administration could also affect the negative revenue predictions for the 1980 fiscal year.

Tentative City of Boston plans call for commissioning Professor Treyz, head of the Massachusetts Economic Policy Analysis Project, to undertake additional analysis of the capacity of the state economy and state fiscal policies to accommodate the revenue requirements of various tax reform alternatives and to evaluate the economic impacts of large-scale statewide reduction of property taxes—on private

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12. Treyz and Williams, "The Impact of Two Recession Scenarios on the Massachusetts Economy and the Massachusetts State Budget", op.cit. p. 2.

investment, economic growth, employment, income and state revenue.

2. Projections of Municipal Economy, Expenditures and Revenues

The tax policy project is using both in-house staff and taking advantage of completed/on-going research operations for required data collection and analysis as to the City of Boston economy, municipal expenditures and revenues. For example, BRA's Research Department has developed a methodology for establishing and maintaining a series on estimates of the City of Boston's gross product and earned income based on data modifications in Survey of Current Business publications of the U.S. Bureau of Economic Analysis. For example, refining the series to express the city's gross product in constant dollars at 1975 prices indicates that 1972, at.$9.8 billion, was Boston's recent peak; from this year through 1976 there was a steady downward trend in the city's real economic growth, with slight recovery to $9.5 billion by 1976.[13]

For analysis of public sector investments in Boston's physical infrastructure and an assessment of the city's infrastructure conditions and its future upgrading requirements, the tax policy project is leaning heavily on research in process by Chester Johnson, consultant to The Urban Institute in an omnibus study under auspices of the U. S. Department of Housing and Urban Development. Among the conclusions of a draft report on Boston generated by the study are the following findings on investments in public facilities by the City of Boston, local and regional public authorities, Commonwealth of Massachusetts and national

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13. See Memorandum of January 3, 1977 from Chris Carlaw to Raymond Torto, "City of Boston Gross Product Series Methodology".

government during the 1962-77 period:

1. Total expenditures by all public sectors amounted to $2-1/4 billion.

2. Infrastructure expenditures were almost equally divided as between new construction and replacement/alteration.

3. These capital expenditures were relatively large investments compared to the prior 50 years.

4. The aggressive capital expenditure program in effect since the 1960's emphasized school construction, urban renewal, mass transportation and port development and was designed (a) to eliminate worn out and inadequate facilities, and (b) to encourage public and private investment in selected areas of the city.

5. Over the next five years, increasing attention will be given to the following categories of capital needs, reflecting infrastructure conditions and policy choices—(a)water and sewer facilities (separation of storm and sanitary sewers, secondary treatment, replacement of mains); (b) rapid transit (estimated at $1 billion, of which 80 percent would be financed by federal grants (U.S. Department of Transportation) and the remainder by bonds of the Massachusetts Bay Transportation Authority; (c) bridges (mainly by State Department of Public Works with federal/state funds);(d) municipal buildings (over 200 non-school facilities); (e) local streets (over 700 miles requiring double the current annual outlay of $4 million); and (f) port facilities (an estimated $117 million to be spent from funds of the Massachusetts Port Authority and the City of Boston, representing a significant increase over the past).

Boston's own capital budget has declined from the 1975 peak of $109 million to an estimated $60 million in 1978, reflecting by and large prudent assumptions concerning how much Boston debt the capital market would absorb. Anticipated public sector investments over the next five years show a decided shift to federal financing of Boston's infrastructure and assume significant state sharing of capital costs for sewers, rapid transit and highways.[14]

The Johnson study will provide a data/analytical base for projecting Boston's future capital expenditure requirements. Less detailed summary base data are being compiled on the capital expenditures of other cities and towns.

Analytic work on municipal expenditures and revenues is in its preliminary stages. Background tables have been prepared showing, at current prices, for the City of Boston historical patterns of current and capital expenditures since 1945; capital expenditures as percentages of total expenditures; changes in composition of total, current and capital expenditures; annual comparisons of Boston expenditures with those of the Commonwealth of Massachusetts since 1960; public employment trends since 1970 — City of Boston, Boston School Department, Commonwealth of Massachusetts; Boston expenditures as percentages of personal income since 1950; Boston expenditures as

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14. See Chester Johnson, "Recent Financing of Boston Infrastructure by the Public Sector", Draft Report, Sept. 18, 1978.

percentages of gross city product; and projected current and capital budgets over the next ten years, with estimates of annual revenue shortfalls. More selective, summary time series on expenditures and revenues of cities and towns in Massachusetts other than Boston are also being planned.

Outside consultant services covering the six-month period beginning July 1, 1978 have been commissioned (1) to analyze new revenue requirements for Boston and other municipalities of Massachusetts adequate to cushion the impact of classification/equalization and to cover municipal current operations and capital outlay needs, and (2) to evaluate the characteristics and merits of major tax reform proposals to achieve these above goals, e.g. proposals for state revenue sharing, combination proposals for expanded sales tax/tax limitation/state revenue sharing, etc.[15] The full report on results of the study is to be published by the City's Office of Fiscal Affairs.

Tax Abatement Issues and Equalization Planning Progress

Although the City of Boston averted wholesale application by the state Appellate Tax Board (ATB) of the 26.8 percent standard to all appeals pending before the Board as established by the so-called Weymouth case, it felt compelled to appeal the ATB decision in the

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15. City of Boston (Office of Fiscal Affairs) contract with Professor Daniel Holland, Sloan School of Management, M.I.T., approved by Mayor, July 11, 1978.

so-called Tregor case, despite the saving grace of ATB's Tregor memorandum, because of the implications of the Tregor decision, estimated at about $130 million in refundable taxes.[16]

As for the mandate of the new Office of Property Equalization to design an equalization plan meeting the revaluation requirements of the State Department of Revenue, the target date for submission of such plan was January 1, 1979. With the technical assistance of a consultant firm and through full-time staff hired under a City appropriation,[17] the expectation is that the deadline will be met and that implementation of the plan will enable the City to comply with provisions of the classification "shelf" statute that equalization within classes precede classification. Preliminary estimates are that the revaluation methodology being recommended in the plan submitted to the state—replacement cost less depreciation and sales data for keeping the estimates up to date—will take some three years and cost an estimated $7.5 million to carry out.

Tax Incentives for Development

The most widely used and useful available tax incentive for development in Boston continues to be the so-called Chapter 121A limited dividend corporate mechanism. As described in prior Project

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16. See p. 18 - 22, "Final Monitor Report", for background on Weymouth and Tregor cases.

17. Ibid, p. 22-23.

Monitor reports, this provides exemptions from property taxes and corporate excise taxes for corporations that limit their net income to 8 percent; they are subject to prescribed in lieu tax payments and excise taxes.[18] Because they provide tax certainty and flexibility during the developmental period, they remain reasonably attractive although the equivalent tax levels are higher than for similar new construction in most other cities. The BRA has under study alternatives to the 121A limited dividend tax incentive, particularly for commercial developments and special-purpose developments such as hotels. Major attention is being given to incentives under existing state laws, especially the Urban Job Incentive Program enacted in 1970 and amended in 1978 to cover commercial development.[19] Also under consideration are incentives

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18. See "Second Project Monitor Report", p. 14-18; Third Project Monitor Report", p. 21-22, and "Final Monitor Report", p. 34-37.

19. Chapter 848, Acts and Resolves of 1970, amended by Chapter 499, Acts and Resolves of 1978, designed to assist urban revitalization through an urban job incentive program. The development incentive is a tax credit available to an eligible corporation against its so-called corporate excise tax. The amount of tax credit is equal to the "equalized tax rate differential" multiplied by the assessed valuation of the real estate owned or leased by the eligible corporation divided by $1000. The "equalized tax rate" differential is the amount by which the equalized tax rate of a municipality exceeds the average equalized tax rate of the state. In addition, an eligible corporation may deduct, in determining net income subject to its state business corporation taxes, an amount equal to 25 percent of the compensation paid to persons living in a eligible area of substantial poverty and employed in such eligible facility.

    The 1978 amendment added "commercial center revitalization districts" as an eligible area of substantial poverty and made businesses located in such districts eligible for authorized tax incentives.

available under the Massachusetts Capital Resource Company (MCRC) through which domestic life insurance companies have established a $100 million fund to under-write loans for firm location/expansion within Massachusetts.[20]

Tax Policy Strategies

A central thrust of Phase II, of course, is continuing analysis of alternative tax reform proposals — (1) state revenue surplus distribution and expanded state revenue sharing, thereby building on the short-term property tax relief enacted in 1978; (2) broadening the state sales tax base and earmarking half the increase in yield to financial assistance to cities and towns; and (3) a property tax limit-property tax reduction package under which the property tax levy would be reduced over a seven-year period by 10 percent each year until it were no higher than 2-1/2 percent of market value, with 50 percent of the growth in state revenue being earmarked for cities and towns. To expedite reaching this tax limit goal on a gradual basis, several expense-lid tactics have been included--the elimination of school committee fiscal autonomy, the elimination of binding arbitration for uniformed police and fire salaries and ending state funding of mandated municipal programs.

Primary analytical attention of the tax policy project, however, focuses on the property tax plan proposed by the newly-elected Governor of the Commonwealth, the center-piece of which is a $500 million statewide rollback of property tax levies during the 1980 fiscal

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20. Under this legislation (Chapter 816, Acts and Resolves of 1977), in return for gradual reduction of their net investment income tax from 45% for 1977 to 14% in 1983, the insurance companies are committed to making an aggregate cumulative investment in the Capital Resource Company of at least $100 million. Since the spring of 1978 this private venture capital partnership has made loans to 13 Massachusetts companies amounting to over $10 million and maintaining/creating over 1400 jobs.

year. As spelled out in a news release of November 3, 1978, it calls for

1. An increase in state aid by $375 million through legislation requiring the return of such additional assistance to property taxpayers.

2. A ban on new state-mandated programs.

3. A limitation of 3 percent for growth in variable expense items of the state budget.

4. Reducing state appropriations in accordance with the 3 percent limitation by implementing better management practices recommended by the Governor's Management Task Force; by reducing fraud, overpayment error and abuse by both vendors and clients in public welfare and medical assistance programs and in use of consultant services; and by imposing partial "no-hire, no-fire" personnel policy.

5. Applying a property tax levy limitation on Massachusetts cities and towns restricting property tax levies for fiscal '80 to actual property tax collections in the prior year.

6. Applying a county budget limitation for fiscal '80 to prior-year budget levels.[21]

Not included above but subsequently added as an explanation of the source for the remaining $125 million of the $500 million reduction was the assumption that normal growth in municipal property tax bases would yield the additional $125 million required for the recommended total property tax reduction.

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21. Press Release, Committee to Elect Edward J. King, 50 Federal St., Boston, MA.

SECOND MONITOR REPORT
PHASE II: TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph S. Slavet
Project Monitor
February, 1979

HUD Research Grant #-2628-RG

Boston Redevelopment Authority
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Kevin H. White, Mayor
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James K. Flaherty, Ass't Treasurer
James E. Cofield, Jr., Member
Kane Simonian, Secretary

Introduction

This monitoring report, covering the second segment of Phase II of the tax policy analysis and planning study, represents a review of project activities undertaken during the period from November 15, 1978 to February 14, 1979.

The following errata should be noted in the First Monitor Report (December, 1978):

1. Delete last sentence on page 3 and substitute therefor the following sentence: "....classification can result in a widespread sharing of tax reductions, while 100 percent tends to concentrate benefits in business and utility tax bills".

2. Delete the word, "50", on line 10 of page 4 and substitute therefor the word, "30".

3. Insert on line 17 of page 4 after the word, "that", the following phrase,"during the first year, with the inclusion of an inflation factor,"

4. Delete on the first line of page 7 the word, "from", and substitute therefor the word, "to".

5. Delete on line 2 of page 7 the first word, "to", and substitute therefor the word, "from".

6. In line 18 of page 14, insert the word, "temporarily", before the word "averted".

7. Delete the word, "ending", on line 18 of page 17.

Peer Group Review

The Management, Finance, and Personnel Task Force of the Urban

Consortium/Public, Inc. conducted its first review of Phase II of the tax policy analysis and planning project on November 30-December 1, 1978. Members of the three-person team[1] that made the two-day visit transmitted individual review reports to the project director. Below are principal comments, suggestions and questions from each of these reports:

Peterson--

....I was much impressed with the caliber of the research, and the connection it has to the policymaking process. Your analysis on behalf of the classification amendment is a model of research in support of policy choices.

Boston's assessment accuracy is the poorest of any major city in the country. Now that the City must move toward full-value assessment, I would think that there would be a severe need for analytical support from your group in improving assessment performance.

....I was disappointed to learn that the City proposes to adopt a replacement cost minus depreciation method of assessment.

....I did not understand the reasons adduced for preferring the cost replacement minus depreciation approach. Even if the decision now has been made to go forward with the cost method, I would hope that your group could provide analytical support that would:

(a) produce reliable, cost-efficient methods for estimating loss of value due to building obsolescence

(b) produce reliable, cost-efficient methods for estimating the land component of total value

(c) develop methods for regularly checking assessment accuracy against neighborhood assessment-sales ratios.

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1. George E. Peterson, Director, Public Finance Group, The Urban Institute, Wash., D.C.; Thomas R. Kershner, Research Director, Temporary State Commission on the Real Property Tax, State of N.Y.; Robert V. Cowan, Jr., Director of Finance, Seattle City Light Co.

Given the continuing fiscal pressure on the City, I would think you would want to turn some of your analytical power to examination of costs that are under City control. The future dimensions of pension costs, given current funding methods, are one case in point.

There are other opportunities, ...for this kind of analysis in support of management alternatives. .....a tracking of the City's employment structure, by age and expected retirement date, would give some idea of the flexibility that exists in the labor force.

Overall, it was my impression that most of the present research effort is being directed to support better-informed lobbying before the state legislature. Although I would not minimize the importance of this effort, the very excellent track record of your group has compiled can also be applied to budget and tax matters under City control.

Kershner—

....The Boston Redevelopment Authority has assembled an able, professional, dedicated and highly capable staff for this work, supplemented by academic consultants, judiciously with the result that you and your colleagues have been able to provide Boston with carefully researched, well articulated tax policy strategies....

It would be important for Boston....to be able to negotiate in lieu-payments from....not-for-profit organizations, and other tax exempt properties....are Massachusetts cities contemplating asking the Commonwealth to fund service-charge payments for tax-exempt properties, from broad-based, state revenues, with payment going directly to the local jurisdictions?

....Boston's classification strategy has been designed to hold harmless the property tax burden of residential taxpayers, on average.... the potential difficulty with this strategy lies in the real danger that false expectations concerning the impact of revaluation may have been raised.....many assessments (and tax bills)will rise significantly following full value reassessment. The question is, will this further impede equalization?

....a persuasive rationale for reassessing residential property on a cost basis has not been articulated....Boston will face very considerable data collection, data processing and cost/depreciation estimating difficulties if this approach is adopted.

To what extent will the assessment function be administered by professional, qualified, well-trained, and knowledgeable full-time assessors?

....I sensed a general concern on the part of the peer review team that the projected timetable should be accelerated, perhaps significantly.

What will be the legal status after 100% revaluation of the tax letters Massachusetts cities have issued to new and/or renovated commercial and industrial buildings.

Cowan—

Overall, the project is progressing towards its objectives. .....The analytical techniques developed by staff are impressive in their concept and use and do promise some level of transferability to other jurisdictions. This is particularly true for the tax capitalization work and the work done on downtown commercial properties.

The level of professionalism on the part of assigned staff and the high level commitment by City officials to the success of the project continues at the same high standards set in the first Review.

The staff of the Project Team appears to recognize both the value and the potential impact of their work, while at the same time recognizing that the politics of tax reform, in all environments, make progress appear slow in incorporating the results of the work into the political process.

A specific area of concern has been expressed time and time again about the City's approach and to do more than simply restate that concern seems to have little probability of any significant impact. The City's assessment practices and procedures are disastrous, and over the eighteen months of Peer Review no discernible progress has been made. In fact, to this observer it appears that now that classification has passed, the City is looking for another excuse to not "bite-the-bullet" and it has found that excuse under the guise of "tax reform". It should be a subject of considerable interest to see what excuse will be developed once tax reform is achieved. The Peer Review Group is fully aware of the fact that there are political risks to assessment reform - but .....if the City fails to make significant reform in its assessment practices, then one interpretation of the study is that it was the vehicle to validate the status quo.

That judgment is perhaps too harsh. The fact that the City has entered into consultant contracts to acquire assistance in establishing modern assessment practices is a positive step.....however, the results of the work, for commercial/industrial properties, is not encouraging. Use of the cost approach to assessment is a most difficult one to effectively implement and given the wide experience in other jurisdictions in implementing assessment practices based on comparable sales, even with few sales in a given period, the Peer Group suggested that the cost approach be reexamined to determine its usefulness and applicability.

Finally, I encourage the City to continue and expand its analysis of the feasibility of local option revenue alternatives to enhance the prospects for tax reform. Recent developments at the national level and the experience of many large urban areas show the dangers of heavy reliance on revenue sources controlled by other levels of government. Local control is the best guarantee of avoiding the vagaries of politics at those levels.

Office Tenant Survey

Completion of the Office Industry Survey, Part II: An Analysis of Office Tenant Responses,[2] a collateral research effort to the tax policy project, represents the most intensive recent analysis of the city's largest and most expensive category of real property in its tax base--downtown office buildings. Complementing Part I, which provided an inventory and findings of a manager/owner survey for 106 downtown Boston office buildings, Part II is an analysis of 1977 and early 1978 responses from representatives of 493 firms (companies, clinics, schools, public and private organizations, etc.) located in the originally surveyed buildings and an updating and revision of the information in the Part I report. Of particular interest for the tax policy analysis and planning project, is the report summary[3] and its chapter (Chapter VII) on Rent, Operating Costs, Real Estate Tax.[4]

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2. Michael Matrullo, Boston Redevelopment Authority, Feb. 1979, 78 pp. The office tenant survey covered about 3.7 million square feet of office space, accounting for about 9-1/2 percent of the total downtown competitive office space. The office tenant sample was representative of office space by class and by market area. Since the Class C office tenant category did not meet its sample quota, all data were weighted by class to assure valid results.

3. Ibid, p. I-6.

4. Ibid, p. VII-54.

Since 1960, some 15-1/2 million gross square feet of office space have either been constructed or converted from other uses in downtown Boston. As a result, 40 percent of all competitive office space (privately owned and operated office space available for lease to the public) in downtown Boston is in the form of new, so-called Class A office buildings. Accompanying this real estate growth is the addition since 1966 of over 40,000 jobs, an employment increase of 28 percent or an average of 2.5 percent per year, generated mainly through the expansion of existing downtown firms. According to the office tenants survey, employers in downtown Boston predict an increase by 1983 of 15,610 jobs, an average annual increase of 1.6 percent, most of the expansion continuing to be by professional and business service companies, finance, insurance and real estate firms.

With this estimated increase in downtown office employment, the expectation is that Boston will maintain a healthy rate of office space absorption into the next decade. According to office tenant survey responses, downtown Boston firms will absorb about 600,000 gross square feet a year during the 1978-82 period, thereby filling up close to 2.5 million square feet of the 3.4 million square feet vacant space in 1978 (9% of total available office space). This anticipated rate of office space absorption and evidence of a limited number of new office building starts anticipated in the near future indicate that there is likely to be "considerable interest in upgrading older commercial buildings in the downtown".[5]

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5. Ibid, p. 3.

Current average rents (for November, 1978) in downtown office buildings, reflecting tightening office space markets and inflationary trends, are as follows: Class A - $12.49 per square foot; Class B - $11.14 per square foot; Class C - $6.87 per square foot. In some Class A buildings, rents are close to $17 per square foot. From the Spring of 1977 to November, 1978, average rents in office buildings have increased within a range of 23 percent to 82 percent, with Class B buildings showing the greatest rent rise. "This increase further illustrates the effects of a tightening office space market where tenants unable to locate adequate Class A space, are opting for rehabilitated space in oder buildings. This trend will filter down to Class C space and will continue until new space enters the market."[6] Since about 10 percent of Class C space is not as convertible to modern use as are larger Class B buildings, however, this proportion of Class C space is likely to remain vacant well into the next decade.

The office tenant survey identified the following areas of downtown Boston as having the greatest potential for future development — the Broad Street area, the Waterfront, and the South Station area. Proximity to clients and supportive businesses, convenience to rapid transit lines and attractive environment/positive image were considered the important factors in coming to these conclusions.

More reliable data on office building real estate taxes than were

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6, Ibid, p. 4.

available in the interim survey showed that such taxes, as a percentage of vacancy adjusted rent (average rent multiplied by vacancy rate for a given class and subtracting the product from rent level), were as follows:[7]

Office Building Category	Real Estate Tax(10/78)*	Real Estate Tax as % of Vacancy Adjusted Rent
Class A	$2.30	.24
Class B	2.13	.22
Class C	1.76	.31

*Per square foot per year.

Boston's Capital Requirements and Public Financing Prospectives

The first phase of a comprehensive study of public sector investments in Boston's physical infrastructure, which also assessed the conditions of the City's physical plant and requirements for its upgrading, described the scope and scale of public capital expenditures made over the 1962-77 period. It also provided a tentative projection of the financing needs for capital facilities over the next five years.

Phase II of this study[8] is a detailed analysis of current capital requirements of public physical facilities located within the City of Boston and of capital needs that will face the City over the next five years. It also probes the adequacy of proposed public financing plans for delivering the capital facilities. The principal conclusions of

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7. Ibid, Table R1, p. 52.

8. See "First Monitor Report, Phase II", Dec. 1978, p. 11-13.

Phase II are summarized below:[9]

1. Some City officials express concern over the inadequate attention to maintenance, an unbalance in funding allocation that accelerates the deterioration of capital facilities. They warn that while the proposed plans for infrastructure may be realized, chronic budgeting problems may mean typical maintenance neglect of the new facilities in future years, thereby continuing the cycle.

2. While "special purpose" public entities have helped fulfill many of the City's infrastructure requirements, they also have certain negative trade-offs. Not only do they reduce the flexibility, authority and overall effectiveness of general-purpose governments serving the same populations, but they have had recent difficulties in raising funds in the bond market.

3. The expanding Federal role in financing the City's capital facilities, accounting for almost one-third of all public sector financing during the 1962-77 period, will likely increase even further within certain major categories over the next five years, thereby easing the pressures on the City and State for financing capital needs.

4. The City's expenditures for streets, highways and related facilities are expected to increase from an average $4 million a year to about $10 million a year, thereby reducing the replacement cycle

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9. From Chester Johnson, "Capital Requirements of Boston Infrastructure and Proposed Financing by the Public Sector: Prospective Five-Year Period", Dec. 26, 1978, 37 pp.

for such purposes from its current 150-year level; but even this improvement may still not be enough to convert the City to a sound rehabilitation program for City streets and sidewalks.

5. Despite the material significance of seaport activities, there is limited Federal financial assistance available for seaport development.

6. The large-scale capital improvements program for mass transit initiated with substantial Federal assistance in the late sixties will be further expanded through an expenditure by the Massachusetts Bay Transportation Authority (MBTA) of about $2 billion over the next five years. The major goals of this phase will be the replacement of all rapid transit cars and half the existing commuter vehicles. About 80 percent of capital project costs will come from Federal funds; the remainder from the sale of MBTA bonds.

7. Despite the substantial Federal proportions for future capital expenditures, particularly mass transit and sewer facilities, the Commonwealth will be required to issue relatively large blocs of State-supported bonds as the State's share of total costs. This increase in State indebtedness could adversely affect the Commonwealth's capacity for long-term financing, as demonstrated by the credit crisis of the mid-seventies.

8. With the State and Federal governments bearing much of the financing responsibility for the capital priorities of the next five years--mass transit, sewers, bridges, etc.--the City of Boston is not likely to incur onerous debt management problems as in the past five

years. Recent signs, however, that the national government may restrict the scale of certain capital programs could require greater financial participation by municipal governments.

9. The Metropolitan District Commission (MDC), the Boston Water and Sewer Commission (BWSC), the Commonwealth and the Federal Environmental Protection Agency have failed to reach an agreement on a final solution for the sewage problem in metropolitan Boston. The marginal abilities of the MDC and BWSC to incur sizeable amounts of additional debt cast doubt on their financial participation in expensive projects for resolving the problem.

10. The $25 million that the City expects to spend over the next five years on rehabilitation and replacement of 200-odd municipal buildings "appears to be modest in light of the ages (average age - 51 years) and general physical condition of most municipal buildings."[10]

Equalization Planning Progress

As predicted in the "First Monitor Report"[11], the City's Office of Property Equalization (OPE) submitted to the State Department of Revenue its so-called Master Plan for Equalization. Consisting of three volumes prepared with the consultant assistance of Joseph E. Hunt and Co., these reports represent the final outputs of a six-month equalization planning process. They include an introductory report

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10. Ibid, p. 17.

11. See p. 15, "First Monitor Report, Phase II", Dec. 1978.

containing the principal conclusions of the planning process, background data about the City, its population, physical development trends, revenue structure; a description of responsibilities and activities of the City's Assessing Department; an analysis of optional approaches for planning and conducting a revaluation in Boston; work to date of the Office of Property Equalization; a description of a proposal submitted to the U.S. Department of Housing and Urban Development for an automated model land title recording system and OPE's involvement therein; a summary of OPE's plans for review and analysis of the City's mapping and parcel identification capabilities; and OPE's plans for the valuation of personal property.

Boston's Master Plan for Equalization is based on the following assumptions:

1. An immediate study of the City's tax maps, to make them adaptable to the requirements of a computer assisted mass appraisal system, including a re-numbering of property parcels.

2. Continuation of the Assessing Department's Personal Property Unit, with adoption of a market-based cost approach as valuation methodology.

3. Adoption of market-based cost approach as principal valuation methodology for assessment of improvements to real property.

4. Adoption of income capitalization and multiple regression analysis as supplementary valuation methodologies for assessment of buildings.

5. Establishment of a land valuation unit for assessment/

maintenance of land values in one central location.

6. Initiation of a data collection process to inventory and measure all data required for valuation purposes, including on-site inspection of every real estate parcel.

7. Establishment of a computerized capacity and system to produce valuations at end of data collection process.

8. Assignment of entire equalization task to Office of Property Equalization working in close cooperation with the City's Assessing Department and using consultant services sporadically where unique expertise is not required on a full-time basis.

A second volume submitted to the State Department of Revenue is entitled, "A User's Manual for the Equalization of Boston Assessments."[12] Designed to guide the implementation of a computer assisted mass appraisal system, this volume is the equivalent of a valuation and administration manual for use by administrative, supervisory and field staff. Below is a summary of the principal chapters in this volume:

Chapter I, Valuation Models--contains detailed information on the appraisal of real estate, including methods of application and techniques for automation. It includes data on the following issues: Cost Approach to Value, Land Valuation, Market Approach to Value, Income Approach to Value, Income Approach to Value and Performance Analysis.

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12. Prepared for the Office of Property Equalization, City of Boston, by Joseph E. Hunt & Co., Inc., Jan. 1979, 343 pp.

Chapter II, Data Base Design — presents a description of 115 data base items classified according to residential property, commercial property and sales analysis file.

Chapter III, Automated Systems Design — describes framework required for automated system development phase; automated system requirements; and alternatives for system design.

Chapter IV, Data Collection — presents a detailed description of data collection activities—neighborhood delineation, field operations, quality control and implementation flow.

Chapter V, System Testing — includes a description of staff requirements, field data collection methods on randomly selected properties, and program testing prior to full implementation.

Chapter VI, Administration — shows equalization systems as orderly work flows, identifying work models and indicating administrative requirements for operating an ongoing system.

The third volume of the Master Plan is essentially a technical addendum to volume II, indicating mapping specifications, neighborhood delineation and requirements for equipment, assessment library, supplies and forms.

Below is the proposed time completion estimates for each major function in the equalization process. CPE estimated that the minimum time to complete equalization is 36 months from the date of approval of the Master Plan by the State Department of Revenue.

1. Computer programming - 21 months
2. Mapping - 24 months
3. Personal property - 30 months
4. Data collection - 24 months
5. System testing (Phase I) - 12 months
6. System testing (Phase II) - 12 months
7. Updating - to begin simultaneously with data collection and continue as permanent function of Assessing Department

Revenue/Expenditure Patterns and Trends, Cities and Towns of Massachusetts

The following findings and conclusions came from an analysis of fiscal patterns and trends for the 351 Massachusetts cities and towns based on a group of selected background tables:[13]

1. From 1967 to 1976, actual municipal expenditures increased at an average annual rate of 9.4 percent, as compared with an annual average of 6.0 percent during the period from 1955-67; in real terms, (constant 1978 dollars), however, the average annual rise was 1.9 percent, as compared with 2.4 percent from 1955-67.

2. From 1976 to 1979, actual municipal expenditures increased at an average annual rate of 6.4 percent; in real terms (constant 1978 dollars), however, municipal expenditures decreased by an annual average rate of 1.1 percent.

3. During each of the two most recent fiscal years, the average annual increase in municipal expenditures was approximately 6 percent;

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13. Jason Kelly, "Revenue and Expenditure Patterns of Massachusetts Cities and Towns; Selected Background Tables", Feb. 1979, Tax Policy Analysis and Planning Project, Boston Redevelopment Authority, Research Department, Review Draft.

in real terms (constant dollars), the 1977-78 change was equivalent to a decline of 1.2 percent; the 1978-79 change represented a decrease of 2.7 percent.

4. When measured against personal income within the state, actual municipal expenditures have not fluctuated very much over the past quarter-century. They ranged from a low of 8.3 percent in 1950 to a high of 10.0 percent in 1976; the most recent figure (for 1978) was 9.6 percent. During this same 1950-78 period, combined state and municipal expenditures ranged from a low of 8.3 percent in 1950 personal income to a peak of 19.0 percent in 1977; the most recent figure (for 1978) was 18.2 percent.

5. On a per capita basis, the most recent (1978) figures indicate that expenditures for all cities and towns are equivalent to $758 per capita, or 9.4 percent of personal income; Boston's per capita figure for 1978 was $1,056 or 14.9 percent of personal income. When translated into deflated 1978 dollars, however, expenditures per capita for the 351 cities and towns during the past 12 years show unusual stability. In 1979 they were estimated at $739, below the 1977 peak of $767 and slightly above the 1967 per capita figure of $728. Boston's expenditures per capita in deflated dollars also seem to have stabilized during this same period. They were estimated at $1,020 in 1979, as contrasted with the 1972 peak of $1,215 and the 1977 per capita figure of $1,079.

6. There are wide differences in municipal expenditures per capita in Massachusetts as between towns and cities on the one hand, as among smaller and larger municipalities, and as between Boston and all other municipalities. In 1978, for example, expenditures of the 312 towns were calculated at 8.3 percent of personal income compared with 10.6 percent for the 39 cities and 14.9 percent for Boston. Whereas expenditures for the smallest towns (under 10,000 in population) were 8.5 percent of personal income, expenditures for the largest cities and towns (over 50,000 population) were 10.6 percent of personal income.

7. According to recent trends, total municipal revenues have fallen behind changes in personal income. Whereas personal income grew by 18.3 percent during the 1976-78 period, total revenues of cities and towns increased by 15.4 percent while state taxes rose by 21 percent.

8. There are considerable differences among cities and towns in Massachusetts in several measures of relative wealth. Whereas 1978 per capita income for all cities and towns is $8,085, the Boston figure is $7,068. The figure for the 39 cities is $7,524, while the 312 towns enjoy $8,636 per capita income. Equalized values per capita show similar contrasts—a 1978 equalized value per capita of $11,851 for all 351 cities and towns as compared with $15,482 for the 312 towns and $8,184 for the 39 cities.

9. State aid to cities and towns in Massachusetts has increased from $639 million in 1967 to $1,463 million in 1978, or by over

130 percent. But whereas state aid represented 46.6 percent of total state expenditures in 1967, despite the impressive improvement over the next decade, state aid declined to 27.4 percent of state expenditures as the rate of state expenditures for all purposes, which quadrupled during this period (from $1,372 million to $5,358 million) far outstripped allocations for state aid purposes.

In addition to continuing analysis of municipal expenditures, revenues and revenue requirements in Massachusetts, a separate evaluation is underway comparing Boston's expenditures and revenues with those of other large cities. Initial outputs from this effort, for example, show Boston as ranking fourth in the 1976-77 fiscal year among the 30 largest cities for total general expenditures per capita. Boston's figure of just over $1,200 per capita ranks behind expenditure totals for Washington, D.C., New York City and Baltimore. Boston's per capita property taxes, however, are approaching $700, far above the next ranking large cities of New York (over $400 per capita) and San Francisco (approaching $400).

Property Tax Limitations: Governor's Proposal and Impact Analysis

On February 9, 1979, the Governor announced property tax and spending limitation proposals as the first of a two-part program for statewide property tax relief. The proposed limits would apply to cities, towns, counties, districts and regional authorities and are for the 1980 and subsequent fiscal years. According to these limits, property tax levies are frozen at 1979 fiscal year levels. Such

limits may be increased only by the following amounts--increases in the overlay (reserve for tax abatements) over 1979 levels, amounts to cover overlay deficits, shortfalls in estimated receipts, and allowances for uncollected prior year property taxes; debt service becoming available for first time; increases in pension costs over 1979 levels; federal or state grant local matching requirements becoming payable for first time; increases in court-ordered expenditures over 1979 levels; increases in state/regional charges and assessments over 1979 levels; amounts approved by Local Finance Appeals Board (new agency). Similarly, the 1979 levy limits are reduced by the following decreases over 1979 levels--in the overlay reserve, in overlay deficit requirements, in estimated receipt shortfalls, in uncollected prior year property taxes, in debt service, in pension costs, in federal or state grant local matching requirements, in court-ordered expenditures and in state/regional charges and assessments. In addition for 1980 and subsequent fiscal years, cities, towns and districts that levy property taxes have their total appropriations frozen at 1979 levels, with the following authorized increases in such limits--newly-payable debt service, increased pension costs, newly-payable federal or state grant local matching requirements and amounts approved by the Local Finance Appeals Board. Decreases are authorized in the appropriations limit for reduced debt service, reduced pension costs and decreases in federal or state grant local matching requirements.

Enforcement of the proposed tax/spending limits is assigned to

the State Commissioner of Revenue, who determines and certifies to local chief executives the applicable levy and appropriation limits. The State Commissioner of Revenue also must approve tax rates of cities and towns. In addition, a 5-member Local Finance Appeals Board, consisting of three state officials and two citizens of the state experienced in municipal finance administration and appointed by the Governor, is authorized to approve exceeding of tax or appropriations limits upon a request made by a two-thirds vote of the local governing body. This Board is also empowered to impose conditions on cities or towns for approved limit excesses and to promulgate rules and regulations prescribing procedures for requesting increases in limits and the specific local finance conditions attendant to such requests.

Finally, with certain exceptions—retirement and group insurance laws, contractual or civil service rights, etc., — any city or town that has accepted any optional provision of the Massachusetts General Laws may revoke such statutes in the same manner. Citizens disagreeing with recission decisions are extended referendum rights applicable to such revocation.[14]

The property tax rollback assumptions underlying the Governor's tax/spending limit proposals and the corollary budget and state aid

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14. From Summary of Governor Edward J. King's Local Property Tax and Spending Limitation Proposal, prepared by Office of Local Assistance, Executive Office of Communities and Development, Comm. of Mass., February 12, 1979.

distribution proposals are as follows--$500 million rollback in fiscal 1980, $400 million rollback in fiscal 1981, and $400 million in fiscal 1982, for a total rollback of $1.3 billion or 43 percent in total local property tax levies. Under an analysis that assumes three-fourths of the total rollback to be financed by expanded State revenue sharing and one-fourth by growth in local property values, Boston might look forward to $173 million of the $975 revenue distribution, with a corresponding reduction in its property tax levy of 39 percent. Increases in Boston's total assessed valuations would mean a further rollback of the City's tax levy. Boston's effective tax rate would, as a result, decline from 8 percent to 4.8 percent or even more with increases in property values.[15]

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15. John E. Avault, Alexander Ganz and Daniel M. Holland, "Tax Limitation; The View from Boston and Massachusetts", Prepared for Conference on Tax Limitation, University of California, Santa Barbara, Dec. 14-15, 1978, p. 35.

THIRD MONITOR REPORT
PHASE II: TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph S. Slavet
Project Monitor
May, 1979

HUD Research Grant #-2628-RG

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Kane Simonian, Secretary

Introduction

This monitoring report covers the third segment of Phase II of the tax policy analysis and planning study and represents a review of project activities undertaken from February 15 through May 14, 1979. During this period the project continued its Phase II focus on revenue requirements of Boston and other municipalities, with particular attention on the potential impacts of property tax classification and equalization on such requirements as well as the impacts of property tax limit proposals, property tax abatement decisions, inflation, municipal expense trends and capital investment needs.

Among the principal activities of the tax policy project under way and/or completed during this reporting period were (1) development of a residential market value index series; (2) analysis of municipal revenue/expenditure patterns and trends in Massachusetts; (3) a parallel, more detailed analysis of revenue/expenditure/employment patterns and trends for the City of Boston; (4) an analysis of the impacts of classification and equalization on some 35 cities and towns that have recently implemented property revaluation and are certified as "equalized" by the State Department of Revenue within the meaning of the classification statute; (5) estimates of the aggregate municipal revenues required to cope with classification, equalization and inflation; (6) detailed evaluation of the municipal financial transactions of a sample of cities and towns for the fiscal years, 1976-1978, to provide an analytical framework for projecting the impacts of legislative proposals that would establish property tax limits;

(7) projection of the effects on each city and town within the state of proposed state aid distribution proposals and their distribution formula components; (8) analysis of principal property tax relief bills filed by coalition and business groups; (9) analysis of the consequences of 1979 bills designed to amend the 1978 property tax classification statute; (10) drafts of alternative municipal revenue sharing proposals; (11) projections of the impact of property tax rollback options on investment, employment, income and tax revenue, with particular focus on such consequences for multi-family investment housing and older commercial properties; (12) projections of future state revenue yields, based on refinements of available economic policy analysis models; and (13) drafts of state development strategy alternatives.

Market Value Index

Well under way is the development of a residential market value index for each year covering the period, 1955-76. This series is being constructed for the 16 planning districts, the 22 wards and all census tracts in the city. Indices for latest years will be used for estimating 1979 market values, data that will be useful in the City's equalization process. The index numbers will be compared with prior series for the 1946-72 and 1946-74 periods and serve as checks for sample validity. The market value indices will also be useful for making comparisons with similar indices being developed for other cities and towns of metropolitan Boston and with available northeast regional and national

indices. Finally, the market value index for the most recent year can help generate an overall market index that will facilitate a more reliable estimate of the total value of real estate in Boston.

Special Project Analyses

(1) "Taxbraker" Proposal: The project staff carried out an independent evaluation of the so-called "Taxbraker" bill,[1] filed on behalf of a coalition of labor (public and private unions), consumer, elderly, and advocacy groups as their major property tax relief proposal for the current year. Essentially a one-year property tax replacement scheme to reduce residential and industrial property taxes while maintaining current levels of jobs and services, "taxbraker" would levy a state excise tax of 7-1/2 percent on a variety of some 30 business and professional services (legal, engineering, accounting, advertising, investment securities, commercial real estate, etc.) and a state excise tax of 1/8 of one percent on the assets and deposits of commercial banks, similar to the current levy on mutual banks. Separate equalized tax tate limits of 3 percent for residential property and 5 percent for industrial property would be established for the two classes of property to be granted property tax relief. The total annual statewide tax yield from this proposal would be used to offset the reductions in property taxes resulting from these tax rate limits. The total revenue yield was estimated at $351 million. Although the project's analysis of "Taxbraker" concluded that the total yield would be closer to $300 million

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1. House No. 2476. See "Questions and Answers About TAXBRAKER", Campaign for Tax Cuts, Jobs and Services, 14 Beacon Street, Boston MA 02108.

than $350 million, its more significant finding was the large gap between the percentage of yield originating within the City of Boston as compared with the property tax rollback benefits that would accrue to the city's residential property owners (20 percent reduction) and to its industrial property owners (10 percent reduction). While Boston would account for an estimated 44.8 percent of the total yield in new taxes, its share of tax relief would amount to 9.7 percent of the total. Boston taxpayers would receive some $33.9 million, equivalent to 7.8 percent of its current property tax levy.

(2) Massachusetts Taxpayers Proposal: Another property tax replacement bill, filed by the Massachusetts Taxpayers Foundation, a tax research and lobbying group representing large corporate interests, combines a broadening of the state sales tax, municipal sharing of state tax growth and a property tax rollback arrangement for statewide property tax relief estimated at $645 million. For Boston the projected impact is a property tax reduction of about $91 million, through $69 million in new local aid and $22 million through the required 5 percent rollback of the prior year's property tax levy. Under this proposal the present limited sales tax of 5 percent would be extended to virtually all commodities and services except food, prescription medicine and utilities. To cushion its effects on low income taxpayers, liberalized income tax credits would be authorized. In addition, 50 percent of annual future increases in revenues collected from income, corporate

and sales taxes--estimated at about $125 million--would be guaranteed as aid to cities and towns. The expanded sales tax and shared state revenue growth components would amount to $505 million and would be distributed equally to municipalities on the basis of the revised school aid formula of 1978 and the lottery formula. Moreover, a required rollback of 1979 property tax levies would further reduce these local taxes by about $140 million, accounting for the total estimate of $645 million in property tax relief.[2]

This proposal contains other important features that impose tax limits, local spending controls and local finance controls as summarized below:

a. A state-local tax limit under which total taxes collected by state and local governments may not exceed a larger percentage of total personal income in the state than taken on the average over the past three years.

b. A property tax limit after fiscal 1980 that restricts property taxes in municipalities operating under the limit to the prior year's levels of property taxes, with the following adjustments--(1) property tax levies may be increased by the percentage increase in the municipality's property tax base; and (2) property tax levies may be increased by the percentage increase in the federal index of prices for state/local governmental purchase of goods and services, up to 5 percent. Moreover, in lower-tax communities(those with full value

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2. Massachusetts Taxpayers Foundation, Inc., "The Taxpayers Foundation Plan to Cut Property Taxes"(undated), 8 pp., One Federal Street, Boston, MA., 02110.

tax rates of $40 or less), the question of adopting the property tax limit must be placed on the ballot for decision by the voters. In higher-tax communities(those with full-value tax rates of more than $40), the limit would be mandatory, but may be exceeded with majority approval of the voters in that city or town.

c. The following local spending controls would be required: (1) prohibition of state mandating of local programs unless state financing is included; (2) strengthening of management rights in collective bargaining and revised definition of management; (3) limitation on school committee fiscal autonomy; (4) authorizing municipalities to rescind decisions to adopt optional programs established by state law; (5) giving county boards the authority to set county budgets, thereby removing the Legislature from the county budget process.

d. The following local finance controls would be enacted: (1) establishment of a permanent Municipal Finance Board to oversee finances of municipalities in fiscal difficulties; (2) strengthening of borrowing capacities of troubled cities and towns; (3) tightening up of procedures applicable to setting of tax rates; (4) establishment of a municipal data bank; (5) requirement that a state Office of Local Government Assistance be set up to assist cities and towns in managing their fiscal affairs; (6) requirement of a full municipal audit at least every two years; and (7) improvements in municipal reporting procedures as safeguard against the incurrence of deficits.[3]

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3. Massachusetts Taxpayers Foundation, Inc., "Summary of MTF's 1979 Property Tax Relief Legislation, S. 1405," Feb. 20, 1979, One Federal St., Boston, MA 02110.

(3) Governor's Local Property Tax and Spending Limit Proposal:

During the three-month period following the February 9th announcement of the Governor's property tax and spending limitation proposal,[4] the tax policy project adapted its analytical efforts to the specifics of the Governor's bill.[5] Under the legislative compromise which finally emerged,[6] the following major amendments were enacted:

—the original absolute limits on increases in annual budgets, appropriations and property tax levies over the 1979 fiscal year were liberalized to 104 percent of the preceding year's approved amounts.

—several substantial budget and appropriation items were added to the original list of exemptions from the limits thereby easing its impact—payments for revenue-producing enterprises, to the extent that they are made from fees and charges (municipal hospitals, water, sewer, electric and gas facilities); unemployment compensation payments; and payments of increases in rates for special education children enrolled in institutional placements on or before the effective date of the act.

—instead of giving a state-controlled Local Finance Appeals Board the power to approve requests of cities and towns for appropriations and tax levies in excess of established legal limits, such increases could be authorized by a two-thirds vote of the local appropriating authority in any municipality with a population of 2500 or more and by a majority vote in any other town or district

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4. See "Second Monitor Report, Phase II", Feb. 1979, p. 18-21.

5. House No. 5603.

6. House No. 5959, basis for Chapter 151, signed by Governor on May 14, 1979.

—"free cash" available at the close of a fiscal year must be used to reduce the property tax levy for the next year, except that a specified amount of such free cash may be exempted from this requirement by a two-thirds vote of the local appropriating authority.

—the act remains in effect during the period July 1, 1979-December 31, 1981.[7]

The revenue side of the Governor's property tax relief program was originally announced as $375 million in new local aid and $125 million available to cities and towns through higher local property taxes generated by new construction and increases in motor vehicle excise taxes, for a potential total reduction of $500 million. This tax relief target was identified as but the first installment in an overall rollback goal of $1.3 billion over a three-year period. A number of factors, added by the Legislature, however, seem to have completely eroded or cut into some of the assumptions underlying the Governor's revenue strategy:

a. Liberalization of the property tax limit in effect authorizes increases up to $125 million in the statewide property tax levy, thereby wiping out the projected rollback anticipated from local property tax growth. On the other hand, the new statutory requirement that "free cash" be used for reduction of the property tax levy (there is an estimated $100 million currently available as "free

7. From OLA (Office of Local Assistance) Newsletter, Special Issue, May 11, 1978, Executive Office of Communities and Development, 7 pp.

cash") could be interpreted as a replacement for the elimination of property tax base growth.

b. The Governor's budget contains $327.5 million in "additional" state aid to cities and towns, but $56 million of this covers increases in reimbursement for county court costs ($15.6 million additional) and increases in current aid programs for cities and towns, regions and authorities--regional schools, tuition payments, retired teachers' pensions, lottery distribution, mass transit subsidies, etc. The remaining $271 million was earmarked as new guaranteed property tax relief by setting it aside in a reserve for additional distribution. The Governor's proposal, however, did not identify under what formula(s) the additional local aid would be allocated.[8]

c. Budget estimates for state revenue yields, according to independent observers, are likely to be revised downward as part of the legislative budget review, while appropriations for state programs labeled as under-funded would be increased, thereby threatening lower distributions of local aid than those originally recommended by the Governor.

(4) Tax Abatement Issues--Tregor Decision and Its Implications:

As pointed out in a prior Monitor report,[9] the City of Boston

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8. From House No. 1, "Executive Budget Recommendations for the Fiscal Year 1980", Feb. 28, 1979.

9. "First Monitor Report, Phase II", p. 14-15.

appealed the Appellate Tax Board decision in the so-called Tregor case,[10] because of the far reaching implications of its central issue--should the lowest-class assessment/full value ratio standard apply to disproportionate assessment cases.[11]

The Supreme Judicial Court (SJC), in a 5-2 decision dated March 23, 1979, upheld the Appellate Tax Board's original ruling in the Tregor case and found that the appellant's assessment "should be reduced to reflect the assessment/value ratio of the lowest substantial class".[12] The principal question had been whether the assessment should be reduced to 50.2 percent of fair cash value, cited as the average ratio for all taxable property in the city (the City's position on the appropriate remedy for a disproportionate assessment), or to 26.8 percent, cited as the average ratio for single-family residences. The Supreme Court's decision in the Tregor case re-affirmed its dictum in the 1965 Shoppers' World case, that had become the precedent for the Weymouth v. Curtis case of 1978. In making a choice as between the municipal average and the lowest-class average, the SJC majority stated "....we uphold the board (ATB) in following our past decisions under which the taxpayer is entitled to an abatement to the lower

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10. Norman Tregor, trustee v. Board of Assessors of the City of Boston, 387 North Eastern Reporter, 2 d Series, 538-546.

11. See p. 18-22, "Final Monitor Report, Phase I", for background.

12. Norman Tregor, trustee v. Board of Assessors of the City of Boston, Appellate Tax Board(A.T.B.), No. 89209, June 30, 1978 and correction, September 14, 1978.

percentage."[13] "We are not persuaded", the majority went on to point out, "by what the taxpayer calls 'the city's doomsday agreement'.... In other contexts the city has made more optimistic forecasts, and it seems clear to us that the adverse consequences will be far less than the assessors claim...."[14]

In a dissenting opinion the SJC minority pointed out that the appellant was receiving a "windfall" because of the City's legal violation, a windfall that "places an extra burden on those who are similarly discriminated against but do not protect their rights." Justice Wilkins, in speaking for the dissent, argued that the Court's opinion did not rest on constitutional grounds or on any explicit statutory basis and was thereby not a constitutional or legal requirement for the Court.[15]

According to an analysis of the implications of the Tregor decision, a recent audit report of the City's finances (by Coopers & Lybrand) included an estimate by City officials that the potential liability of the City of Boston for the 10,000-odd appeals pending before the Appellate Tax Board was about $100 million.[16] The analysis emphasized that until equalization and classification were implemented, the City would continue to be liable for disproportionate claims. It

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13. Op. Cit. 387 North Eastern Reporter,

14. Ibid.

15. Op. Cit. 387 North Eastern Reporter, 2d Series, 544-546.

16. Note No. 14 to Financial Statements, Report of Certified Public Accountants, March 3, 1979, p. A-11.

predicted that most commercial and industrial property owners would file abatement applications, thereby resulting in an equalization of all properties at 100 percent of full value despite the statewide referendum which had approved the policy of taxing business and residential properties at different rates. The analysis also noted that the City is appealing the SJC decision to the federal court and has filed legislation (House No. 2109) that mandates an average class remedy for both pending and future appeals of disproportionality.[17]

In addition to the above analysis of the implications of the Tregor decision for Boston, the tax policy project is evaluating the impact on all cities and towns in the state, particularly on their single-family homes, of the lowest class ratio standard required by this decision. Estimates were made for Boston and municipalities over 50,000 population of the anticipated changes in the total property tax on single-family homes. Total abatements in Boston resulting from application of a lowest class ratio of 26.8 percent were estimated at about $140 million.

Coordination with City's Office of Property Equalization

Staff of the tax policy project initiated plans for a coordinated effort in analysis of recent market value data with staff of the expanding Office of Property Equalization. According to these plans, if the latter completed deed abstract cards available from the County

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17. Office of Deputy Mayor for Fiscal Affairs, "The Implications of the Tregor Decision for Property Tax Policy in Massachusetts", April 18, 1979.

Register of Deeds in the Assessing Department, tax policy staff could weed out unacceptable sales and thereby pave the way for adding 1977-79 values to the data base. Early optimism for effective coordination on this and other mutual interests soon dampened, however. The Office of Property Equalization is now fully staffed, but it has priorities that appear to be more important than an up-to-date reliable sales data file. Concerns growing out of the Tregor case, implementation of the reproduction cost phase of revaluation and launching computer mapping component of the revaluation appear to have the highest priorities.

As for the equalization plan itself, as of mid-May 1979, the State Department of Revenue had not yet officially acted on the document submitted at the beginning of the year.

FINAL MONITOR REPORT
TAX POLICY ANALYSIS AND PLANNING STUDY
THE BOSTON CASE

Joseph S. Slavet
Project Monitor

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Introduction

According to the most recent revision of the outline, the substantive sections of the final report on the tax policy analysis and planning project, tentatively entitled "Fiscal Stress and Fiscal Progress; Boston's Strategy, 1976-80", will consist of the following four major chapters and sub-headings:

I. Tax policy objectives and property tax constraints--data collection/analysis as basis for the consideration of tax strategy alternatives

II. Evolution of tax policy strategy--sharing of broad-based state taxes; property tax classification; local tax-expenditure issues; tax limitation movement

III. Data base/analytic process and techniques--revenue-expenditure data collection, analysis and issues; property tax diversions, property tax assessment, revaluation and classification; analytical techniques

IV. Implementation of revaluation and assessment reform

To avoid duplication with the content of the final document for the tax policy project, this report of the Project Monitor covers only institutional issues: (1) those dealing with the development of analytical capacity in tax policy at City Hall; (2) those dealing with the evaluation of a financial management decision-making system and mechanism in City Hall; and (3) those dealing with changing state roles in state-local fiscal affairs, with an emphasis on state supervision of municipal financial management, particularly local property assessment practices.

Tax Policy Analysis--Consolidation of Analytical Capacity at City Hall

The Project Monitor's final report covering Phase I of the tax policy project concluded that an on-going analytical capacity in tax policy at City Hall had not only been developed, "but to an extent far beyond original hopes and expectations".[1] The legislative results and fiscal impacts of analytical activities carried out under auspices of the City's Office of Fiscal Affairs during the 18 months of Phase II, with the technical assistance and support of the tax policy project, indicate that the City's institutionalization of its tax policy roles was no "flash in the pan".[2] This analytical capacity was felt strongly by decision-makers in the legislative Committees of Taxation and Ways and Means and by the leadership of the Massachusetts House and Senate, as they deliberated final drafts of state aid distribution proposals, state-cost shifting bills, property tax classification and subsequent amendments, and tax/expenditure limitation legislation during the past two years. The City's Office

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1. "Final Monitor Report, Tax Policy Analysis and Planning Study, the Boston Case", July 1, 1978, p. 3.

2. See reports of Project Monitor dated December, 1978, February, 1979 and May, 1979.

of Fiscal Affairs and its technical affiliate, the tax policy project, were perceived as reputable and timely sources of data and analysis not only of the estimated effects of tax policy options on the City of Boston, but of the potential impacts of such choices on the state as a whole, on cities and towns as a total group, on particular categories of municipalities and on individual communities.

Thus the Office of Fiscal Affairs and the tax policy project can claim significant credit for improvement in Boston's share of state aid authorized in 1978 and 1979, financial assistance that was instrumental in stabilizing Boston's tax rate during these two years.

The table below, summarizing recent trends in estimated "Cherry Sheet" receipts (estimates of state distributions and appropriated reimbursements to cities and towns) during the past three years, shows the tangible results of these analytical efforts and follow-up legislative activity. Whereas the statewide total for estimated Cherry Sheet receipts increased by $242 million between 1977 and 1979, or by 31.9 percent, Boston's share of state distributions and reimbursements for 1979 was $85.9 million or 73.0 percent above the 1977 total. As a result, Boston's allocation from estimated Cherry Sheet receipts has increased from

15.5 percent of the statewide total for 1977 to 20.4 percent for 1979. This improvement in Boston's relative position was due mainly to a complex package of $260 million in additional state financial assistance that included $150 million in state aid for schools, $80 million to finance state takeover of county court administration and expenses, and a $30 million supplement for general purpose aid to cities and towns under the so-called lottery distribution. A revised school aid formula benefitted the less affluent, larger cities and towns such as Boston, while the county court legislation was especially helpful to Boston, which had shouldered about 30 percent of statewide expenses for county courts, and to large cities and towns with relatively high proportions of county-wide equalized valuations, the factor determining municipal shares of county court costs.

Estimated Cherry Sheet Receipts	1977	1978	1979	% Chang 1977-
State total	$758 million	$798 million	$1,000 million	+31.9
Boston	117.7 million	141.3 million	203.6 million	+73.0
Boston % of state total	15.5%	17.7%	20.4%	

Source: Massachusetts Taxpayers Foundation, Inc., Municipal Financial Data (1977, 1978, 1979), Boston, Mass.

The City's Office of Fiscal Affairs, with the technical assistance of the tax policy project, also laid the extensive groundwork for the constitutional amendment authorizing the classification of property for taxation purposes according to use[3] and for its implementation through legislation,[4] thereby helped to prevent drastic redistribution of the property tax burden within Massachusetts and averting severe social and economic dislocation within the larger cities and towns of the state, including Boston.

A decision of the Massachusetts Supreme Judicial Court(SJC) upholding the 1978 law for the assessment of property according to classification[5], and a subsequent favorable advisory opinion of the court regarding the constitutionality of proposed classification legislation to replace the original so-called shelf statute [6]

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3. Article 112, ratified by people on November 7, 1978. See p. 7-8, "First Monitor Report", Dec. 1978.

4. St. 1978, c. 580, amended by St. 1978, c.797.

5. Associated Industries of Massachusetts, Inc. and others, vs. Commissioner of Revenue and others. Order entered on July 6, 1979 sustaining the constitutionality; SJC opinion rendered on August 3, 1979.

6. Advisory opinion of SJC on July 6, 1979 to Massachusetts House of Representatives on constitutionality of House Bill No. 6371, "An Act making changes in the taxation of real property by usage classification".

validated the analytical quality of the City's strategy to prevent 100 percent valuation of real estate.

The court's 16-page decision in support of the 1978 classification statute rejected the following four contentions raised by the appellants concerning constitutionality: (1) that the classification law is invalid because it was enacted before ratification of the pertinent constitutional amendment; (2) that the state was constitutionally defective in requiring the implementation of taxation by usage classification in those cities and towns certified as assessing real property at full value, while other non-certified municipalities continue to operate under an unclassified taxation system; (3) that the statute exempted electric and gas utilities from property taxation and replaced this with an excise, thereby creating an unauthorized fifth class; and (4) that the statute allowed a $5000 exemption for each parcel of residential property, while defining condominium units but not rental units as such parcels, thereby being fatally discriminatory.

The following selective quotations from the opinion focus on each of the above four issues:

> .....The conditional or contingent route is not closed to the Legislature by any explicit provision of our Constitution or by any implication that we can discern from the framework of the Constitution.....The overwhelming majority of the courts that have considered the matter agree

> that no such reason obtrudes and the legislative procedure is not involved. There is, indeed, plain purpose and advantages in conditional legislation where the constitutional amendment is not self-executing but requires implementation
>
> .....the prerequiste of certification is a means of assuring that local assessors will comply with the legal requirement of fair valuation.....The statutory prerequisite is a temporary expedient and cannot be fairly viewed as creating an objectionable dual system of taxation. .....
>
> Such inequalities as may be conceived to arise from the prerequisite of certification are surely not offensive to the equal protection guaranty.
>
> [The claim of the plaintiffs that the excise on utilities is not an excise but a property tax] rests essentially on the fact that property values figure in the rather complicated formula by which the excise is calculated.....The fact that a tax on the exercise of a privilege is adjusted in whole or in part to property values does not deprive the tax of its character as an excise.....the intention of the Legislature... through its characterization of the tax as an excise, deserves judicial respect.....
>
> We cannot say that the distinction taken by the Legislature in spelling out the residential exemption [as between condominiums and tenancies] was beyond the bounds of reason.[7]

The Massachusetts Supreme Judicial Court's advisory opinion on the constitutional concerns of the Legislature regarding substitute legislation for the classification shelf statute dealt with two issues: (1) whether the Legislature "may

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7. Associated Industries of Mass. vs. Commissioner of Revenue, op. cit.

lawfully delegate to the municipalities a limited authority to set different rates for the several classes and thus to determine how the tax burden shall be allocated among the classes";[8] and (2) "whether the requirements of proportionality contained in the Classification Amendment would be satisfied by having each municipality set a proportional rate for each class of property within its boundaries, although there would not be a proportional rate for each class of property throughout the Commonwealth:"[9]

In answering the first of the above two questions in the affirmative, the SJC stated:

.....

> The power that would be delegated under the bill may be viewed as somewhat broader than that exercised under previous legislation.... but the difference would not be such as to make the delegation constitutionally vulnerable. The municipalities would carry out their customary roles of establishing effective rates suited to local conditions. There would merely be some novelty and some added flexibility in the details of the process.....10

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8. Unofficial Synopsis Available from the Reporter of Decisions, Advisory Opinion of Supreme Judicial Court, July 6, 1979, concerning the constitutionality of House Bill No. 6371, the basis for St. 1979, c. 797, p. 2.

9. Ibid.

10. Advisory Opinion of Supreme Judicial Court of Massachusetts, July 6, 1979, concerning the constitutionality of House Bill No. 6371, p. 12.

In answering the second question in the affirmative, the SJC concluded:

.....

> There is no reason to believe that proportionality under the amendment of art. 4 was intended to require that municipal tax rates be uniform statewide.....The present statute assumes, we believe correctly, that the requirement of uniform rates (for each class of property) relates to the individual municipalities, not the state; and the same would hold in respect to the bill.....11

The City's Office of Fiscal Affairs, assisted by the tax policy project, also made important analytical contributions to the conceptualization and revisions of the legislation substituted for the initial classification statute and signed by the Governor on the eve of the Legislature's prorogation, November 16, 1979.[12] On the one hand, the new legislation may be interpreted as radically changing the property classification act adopted the prior year, since it substitutes a local option classification model for the rigid statewide requirements in the 1978 act, and because it broadens the scope of the original legislation to include detailed provisions for the enforcement of uniform assessing

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11. Idem, p. 14.

12. Except for its provisions dealing with abatements, St. 1979,c.797, takes effect for the 1981 fiscal year or as soon after the State Commissioner of Revenue has approved the full value of property in each class, the minimum residential factor, and the technical qualifications of a majority of local assessors.

standards, and requirements that the Appellate Tax Board must calculate abatements in "disproportionate assessment" cases on the basis of the average equalized tax rate for all property in the municipality rather than on the basis of the lowest rate for any class of property.[13] On the

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13. See "Third Monitor Report", May, 1979, p. 9-12, for a discussion of the implications of the Tregor decision, which these legislative provisions are designed to avert. The provisions would apply to pending cases and all new cases through 1983. Provisions restricting the appeals of property owners, particularly in pending cases, are being litigated.

During mid-March, 1980, the Supreme Judicial Court heard arguments in a suit brought by five Boston property owners challenging the constitutionality of two sections (10 and 24) of the revised Classification Act of 1979(c.797). The plaintiffs contended that the legislative limitation on the calculation of the abatement remedy in "disproportionate assessment" cases contained in the Act and applying such limitation on a retroactive basis to all cases pending before the State Appellate Tax Board(many of which were filed before the effective date of the legislation, November 16, 1979) violated constitutional due process and the revised Classification Act itself. Arguments of the defendants (City of Boston and Appellate Tax Board) emphasized that the limitations on recoverable damages and the retroactivity clause were within the powers of the Legislature and represented essential means to protect Boston and similar communities from the financial damage that would result from application of a lowest class formula.

The ATB's interpretation of the retroactivity provision in the legislation is that cases heard by the Board prior to its effective date were not subject to the average class standard contained in the new act, even if not actually decided until after that date. The City of Boston, in turn, is appealing almost all of the ATB decisions determined on the basis of lowest class standard, regardless of the above ATB interpretation as to its applicability. Such appeals will go to the SJC if the latter upholds the constitutionality of the disputed legislative provisions. Even if the City of Boston loses these appeals, it has another constitutional challenge based on the argument that the "lowest class" should be defined as a composite of single-family and multi-family property rather than being restricted to a single-family determinant. (See Banker and Tradesman, March 26, 1980, p. 1 and 4.)

Since the abatement sections of the act are severable, the remainder of the law would remain in effect if a court finds these provisions to be unconstitutional.

other hand, the basic principles and goals of the initial classification statute were retained. And there seems to be growing consensus that the local flexibility of the replacement statute is its major virtue. Instead of prescribing fixed, uniform percentages of value for each of the four classes of property (the approach of St. 1978, c. 580), the new law allows for local determination of the proportions of the total local tax burden that each of the four classes of property will bear within each municipality. The new legislation seems to be a recognition that the class mix of property differs from community to community, and that mayors and city councils in cities, and assessors with the selectmen's approval in towns, should make the crucial biennial decision concerning the relative shares of the local tax burden, by determining within carefully-drawn legal limits what the so-called "residential percentage" shall be, subject to approval of the State Commissioner of Revenue.

Another home rule feature of the new classification act is its use of locally-established, state-approved full values of property in calculating tax ratios for each class, instead of state-determined equalized valuations. This provision is designed to stimulate cities and towns to update and maintain equitable assessments, particularly within classes, and to encourage the state to use its powers for supervising and enforcing these local requirements.

Also subject to local determination is the implementation of a residential exemption up to 10 percent of the average full value of all the residential properties in a municipality. This replaced the mandatory statewide exemption in the old law of the first $12,500 of the full value of each residential parcel.

Perhaps the most important component of the new classification act is the limit that it places on the tax proportion for non-residential property, which may not be taxed at more than 150 percent of its full-value share. If, for example, non-residential property in a town accounted for 40 percent of total values, it could not be taxed for more than 60 percent of the town's total tax (40% x 15% = 60%). Thus this limitation really determines the maximum degree of tax shifting from non-residential to residential properties. Since the "residential factor" may not be less than 65 percent or more than 100 percent in each municipality and the average community does not have enough non-residential property to generate a residential factor as low as 65 percent, except for the older industrial communities, the residential factors are likely to exceed 80 percent.[14]

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14. For useful summaries and analyses of St. 1979, c. 797, see "The New Look of Property Tax Classification....the Saga of a One-Store Town", Massachusetts Taxpayers Foundation, Inc., Nov. 20, 1979, and "A Guide to Chapter 797 of the Acts of 1979, The 'Home Rule' System of Implementing the Classification of Property for Purposes of Taxation", J. Kinney O'Rourke.

A Financial Management Decision-Making Mechanism: An Elusive Goal

As the tax policy project winds to a close, it cannot point to the existence of an integrated mechanism in the City of Boston to facilitate "a comprehensive, long-range orderly approach to fiscal planning and decision-making", which had been a high priority goal of the HUD-assisted tax policy process.[15] The organizational components of such a system are in place; some have legal legitimacy, others have tenuous status that rests entirely on an executive mandate and continuing executive support. Close examination of the goals and roles of the Office of Fiscal Affairs and the Administrative Services Department, recognized as the primary City fiscal agencies, and of their constituent units indicates the emergence of a fiscal decision-making chimera. Overlapping and duplication in leadership for fiscal policy and management and in coordination of fiscal departments is intensifying as jurisdictions are blurred by confusion and conflict over legal and assigned status and responsibilities.

Mayor's Office of Fiscal Affairs. Four consecutive years of steadily-increasing financial commitment for the Mayor's Office of Fiscal Affairs (from expenditures of $36,352 in 1977-78 to an appropriation of $182,680 for 1979-80) and Deputy Mayor's status for its administrative head certainly provide strong evidence

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15. See "Final Monitor Report", July 1978, p. 3-4.

that the Mayor has assigned high priority to tax and fiscal policy issues. Moreover, the following list of articulated goals for the Office of Fiscal Affairs tend to support the hypothesis that this agency is being groomed for ultimate primacy in the formulation of fiscal and tax policy:

> 1. Maximize impact and efficiency of City's financial departments by insuring coordination of these departments.
>
> 2. Propose legislative and administrative changes designed to increase revenues from state and federal governments and decrease uncontrollable costs mandated by other entities, and supervise the implementation of those changes approved by the legislative and administrative processes.
>
> 3. Propose legislative and administrative changes designed to maximize revenues to the City from private sources and supervise the implementation of those changes approved by the legislative and administrative processes.[16]

Administrative Services Department. The Administrative Services Department, on the other hand, is designated by City ordinance for coordinating the City's financial policies and practices. When established over 25 years ago,[17] its creation was generally hailed as the high-light of the comprehensive reorganization of city government in Boston that emerged during that year, and this agency was perceived as the linchpin of a modern coordina-

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16. City of Boston and County of Sufflok, 1979-80 Program Budget (City of Boston Printing Section), p. 57.

17. Ord. 1953, c.8, effective January 1, 1954.

tion and control mechanism for the City's executive branch.

Headed by an Administrative Services Board, with a Director of Administrative Services as Chairman, the Administraive Services Department represented a consolidation of the City's existing management planning and control functions--budget, personnel and purchasing--and constituted an effort to strengthen important linkages between these activities and other key fiscal planning and management functions--accounting and auditing, revenue collection, custody of funds, including investment and debt management, and property assessment.

Rationale for the Administrative Services Department and for other major departmental changes carried out through three separate, but interlocking ordinances during 1954 drew heavily on a series of administrative survey documents produced with the assistance of outside consultants under auspices of the Boston Finance Commission, state "watchdog" of the City's finances.[18] Implicit in the consultants' recommendations and in the final report of the Finance Commission covering the organization of the executive branch of Boston's city government were concepts and models found in post-war City Charters adopted in such large cities as Philadelphia, New Orleans, Newark, San Francisco, and Los Angeles.

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18. Mandated by St. 1948, c. 261.

Not only did the State Legislature encourage the City to overhaul its executive branch by authorizing a comprehensive survey to produce "a blueprint for good administration", but in 1953 it gave the City the legal tools required for implementing reorganization plans. The Legislature amended those provisions of the City's Charter governing the authority of the Mayor and City Council to establish, reorganize and abolish executive departments, administrative boards and officers and to assign or transfer City powers, duties or appropriations to any department, agency or division thereof.[19] By liberalizing the definition of the term, "reorganize", and by bringing agencies not under the direction of a department head within the scope of the power to reorganize, the number of exempt departments was substantially reduced and the City acquired a reasonable degree of home rule authority to update its organization.

The structure, powers and roles of the Administrative Services Department, as originally delineated by ordinance, reflected a kind of compromise with two management concepts emphasized in the Finance Commission's final report[20] and the consultant's report on the City's fiscal agencies

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19. St. 1909, c. 486, Section 5, amended by St. 1953, c. 473.

20. Boston Finance Commission, Final Report of the Administrative Survey by the Finance Commission of the City of Boston, Feb. 1, 1950.

and fiscal practices [21]: (1) general management assistance for the Mayor,and (2) an integrated organization for financial planning and management.

The duties and corollary powers given to the office of the Director of Administrative Services virtually made its incumbent the Mayor's chief of staff. The ordinance designated this person as the City's chief budget officer (prior to creation of a separate position of Supervisor of Budgets), empowered the position with unprecedented responsibility to approve all personnel transactions-appointments, transfers, promotions, reinstatements and changes in title or pay - except where the Mayor orders otherwise in writing, and identified the incumbent as the City's focal point and catalyst for undertaking studies and recommendations with respect to the organization, activities, policies and procedures of all departments, boards and officers in order to ensure economical and efficient administration. Thus the Director of Administrative Services was perceived as the strong right hand of the City's chief executive, to assist the Mayor in the coordination and oversight of agency operations, to provide administrative direction in planning and carrying out institutional changes, and armed with delegated powers over resources allocation(as budget officer and super-personnel officer),to carry these roles out effectively. According to the conclusions

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21. Griffenhagen & Associates, Financial Administration, City of Boston, Report No. 14, March 1, 1949.

in the final report of the Finance Commission:

> In an organization of the size of the executive branch of the government of the City of Boston, it is impossible for the Mayor alone to provide all of the general management required. The chief executive must be provided with capable assistants, in charge of one or more functions of the executive branch, to assist in the processes of planning, organization, direction, and extend relationships. This assistance cannot be provided at an operating level. Combined with this factor is the need for coordination among operating units. Provision for the necessary coordination and assistance in general management can be obtained best through the creation of a level of organization above that of the operating units.[22]

Although the ordinance creating the Administrative Services Department adhered closely to survey report recommendations concerning the chief of staff role and proposed specific duties for the office of Director of Administrative Services, it stopped short of accepting the basic recommendation for an integrated Department of Finance, in which all fiscal planning and control functions would be consolidated.

A major criticism of the survey report on financial administration had been that the City's

> financial functions are dispersed among several mutually independent agencies, each reporting individually to the chief executive. This dispersion of responsibility and authority prevents the achievement of a truly high degree of integration, coordination, and cooperation among agencies engaged in administering the various aspects of the City's fiscal affairs. It leads to duplication of effort and interde-

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22. Finance Commission, Final Report of the Administrative Survey, op.cit., p. 40.

> partmental jealousy, encourages waste of effort on uncoordinated objectives, and helps to stagnate outmoded procedures. There is no single, authoritative, central source of financial information and advice for the guidance of the city administration."...[23]

City officials responsible for the final design of the Administrative Services Department, while conceding the desirability of more effective coordination of fiscal agencies, placed higher priority on maintaining prevailing checks and balances among the City's treasury, auditing and assessing agencies. While endorsing the proposal to merge the collection of taxes with treasury management responsibilities within a unified Treasury Department under a Collector-Treasurer, drafters of the ordinance creating the Administrative Services Department settled for a relatively loose arrangement for achieving more cohesive coordination of fiscal policies and practices through an entity called the Administrative Services Board. The ordinance made the City Auditor, Collector-Treasurer and Commissioner of Assessing ex-officio members of this board, but maintained their independent department head status. On the other hand, while the ordinance also designated the Supervisor of Personnel and Purchasing Agent as

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23. Griffenhagen & Associates, Financial Administration, City of Boston, op. cit., p. 1.

members of the Administrative Services Board and gave them specific assignments within their areas of expertise, it granted the Director of Administrative Services the powers of department head with respect to the subordinates of these two officials.

Since the first Director of Administrative Services (Charles J. Fox) had a national reputation as a municipal financ officer, and distinguished service over many years as both City Auditor and Budget Commissioner, there must have been optimism that his combination of strong personality, financial management skills, depth of information about actors within finance agencies not under direct management control, and legal powers over budgeting and personnel would overcome a less than ideal organizational structure for financial administration.

Unfortunately, Fox's tenure as Director of Administrative Services was relatively short. Several subsequent changes eroded the primacy of the position of Director of Administrative Services and the original conceptualization of its "chief of staff" role. In 1956 a separate office of Supervisor of Budgets, appointed by the Mayor, was established within the Administrative Services Department and the Director's duties over budgets,

appropriation transfer orders, budget estimate sheets and monthly expenditure reports were assigned to this new office "under the direction of the mayor" and subject to "consultation with the director of adminstrative services[24]. The Supervisor of Budgets also became a member of the Administrative Services Board.

In 1968 a separate office of Deputy Director of Administrative Services for Fiscal Affairs was created to "review all aspects of fiscal affairs of the city and to make recommendations for continual modernization and improvement in basic fiscal affairs of the city, including but not limited to means by which the budget can be used to effectuate policy decisions[25]. The incumbent of this office (now vacant) is also a member of the Administrative Services Board. The Mayor's message to the City Council recommending establishment of this office emphasized that the City's budget "should be a tool to enable the executive and legislative branches to focus on important policy decisions. Our current practices", the message continued, "fall far short of this ideal. Creation of this position with supervision of the budget process from this perspective

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24. Ord. 1956, c.3.

25. Ord. 1968, c.2.

is designed to bring the City closer to this ideal".[26]

Finally, in 1974 an office of Supervisor of Labor Relations appointed by the Mayor, was established within the Administrative Services Department to provide capacity to carry out new provisions of state law applicable to collective bargaining for municipal employees. The ordinance creating this office empowered the Supervisor of Labor Relations "under the direction of the mayor, and in consultation with the director of administrative services" to "review all aspects of the labor relations of the city and make recommendations for their improvement, represent the mayor in all collective bargaining in which the city is involved, and by himself or through assistants appear in all grievance, arbitration, and court proceedings involving labor relations."[27]

Almost simultaneously with the creation of the new Office of Fiscal Affairs, the Mayor in 1978 authorized establishment of an Office of Management and Budget under a Director, presumably to inherit the responsibilities of the Office of the Deputy Director of Administrative Services

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26. Message of Mayor Kevin H. White to City Council, March 25, 1968.

27. Ord. 1974, c. 5.

for Fiscal Affairs and to expand the scope and intensity of the City's management improvement and productivity efforts. Unaffected by this move, however, were powers and duties assigned to the office of the Director of Administrative Services, specifically charged by ordinance with stimulating more economical and efficient administration of City agencies, and to the Office of the Supervisor of Budgets, responsible under ordinance for budgets and appropriation transfers. Without the legal status of a public officer, lacking the clout of a separate agency appropriation, and unable to exert supervision over the budget process and the budget staff, the Director of Management and Budget is hardly in a position to carry out the full purpose of this new office.

The current agenda of unresolved issues and problems in critical areas of the City's management and finances suggests that the Administrative Services Board and Administrative Services Department, despite significant injections of professional staff during recent years, have not lived up to their early institutional hopes and expectations. The chief of staff concept embodied in the position of Director of Administrative Services, whose incumbent also has the title and prestige of Vice-Mayor, has been diluted by gradual dispersal and fragmentation of its original powers. The recent comprehensive audit of the City's finances[28], in

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28. Coopers & Lybrand, City of Boston, Report on Internal Accounting Controls and Other Matters, Aug. 3, 1979.

documenting serious deficiencies in the assessment of property, personnel and payroll controls, purchasing and contract practices, the funding of retirement benefits, electronic data processing, departmental revenue systems, internal auditing, internal accounting and personnel management, implied that successive Directors of Administrative Services and Administrative Services Boards had been unable, either by force of personality or by imaginative utilization of legal powers, to overcome previously cited organic weaknesses in organizational structure. Moreover, the total staff assigned to the administrative, budget and personnel units of the Administrative Services Department has reached a quota of 86 (including 45 positions classified as middle management or higher in rank). Quadruple its size in 1955, this expanded professional staff also is severely stymied by the dispersion of responsibility and authority of Boston's financial functions among either independent or semi-independent members of the Administrative Services Board.

Conclusion. A quarter-century ago a consensus emerged that the City's sprawling bureaucracy of 34 departments and boards under direct control of the Mayor had to be reorganized and that the City's chief executive badly needed powerful, professional assistance in general management, particularly in the formulation and management of fiscal policy, to oversee City

operations. A streamlined system of functionally coherent agencies, including a strong central staff mechanism, was established to help the Mayor respond effectively to political mandates and social change. The total number of administrative agencies reporting directly to the Mayor is back where it was 25 years ago. General management assistance is widely dispersed among fiscal planning and control agencies created by ordinance and among agencies established by executive directive. The chief of staff concept has been gradually weakened and the financial policy and management structure is badly fragmented. This seems to be an appropriate time to re-examine the powers, status and relationships of the Administrative Services Board and the Administrative Services Department, including their constituent agencies, and to focus this review on the relevance of their current roles to those of newly-established entities such as the Mayor's Office of Fiscal Affairs and the Office of Management and Budget.

State Roles in Municipal Finance[29]

Although this tax policy project has not directed its attention specifically to the issue of whether and how state institutional roles and mechanisms have affected City tax policy, project activities have helped raise questions about the governing premises of state-local fiscal relationships, including the accelerating trend toward municipal tax/expenditure/budget limitations[30], and about the roles of state agencies charged with regulatory, monitoring and technical assistance responsibilities in municipal financial management.

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29. For a recent comprehensive study of this issue, see Peterson, John E., Stallings, C. Wayne, and Spain, Catherine Lavigne, State Roles in Local Financial Management: A Comparative Analysis (June, 1979, Government Finance Research Center, Wash. D.C.). This study is organized into (1) an analysis of several forms of state regulation of local financial management--(a) financial practice regulation, requiring compliance with such specified financial practices as budgeting, accounting, financial reporting, etc. designed to strengthen the capacity of the local decision-making system to make sound financial choices; (b) financial policy regulation, putting direct limits on local financial decision-making discretion, such as tax limits, debt limits, balanced budget requirements; (c) mandatory financial service, in which the state performs a specific financial management function that local governments would otherwise do themselves, such as audits; and (2) state assistance to local financial management, in which the state seeks to secure voluntary improvements in financial practices and policies, by providing consulting services, training, monitoring, and other forms of assistance which are often linked to regulatory activities.

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30. See "Second Monitor Report, Phase II", Feb., 1979, p.18-21, and "Third Monitor Report, Phase II", May, 1979, p.7-8, for discussion of Governor's proposal for local property tax and spending limitations, and of final legislation based on this proposal.

State Supervision of Municipal Finance

Varying degrees of state control and supervision of municipal finances in Massachusetts, woven together in a body of General Laws know popularly as the Municipal Finance Act[31], established a tradition of state-local fiscal partnership and interdependence under the aegis of the State Department of Corporations and Taxation (predecessor of the State Department of Revenue), long before constitutional home rule was extended to cities and towns in 1966.

In Massachusetts the long-standing legal mandate of the state to oversee municipal financial practices is over 100 years old. Through a mix of state regulation of local financial management and state assistance to local financial management, this body of legislation authorizes designated state agencies to help local officials exert fiscal control, to assist them in maintaining fiscal solvency and, to encourage them in managing resources wisely. For example, the Bureau of Accounts, in the Division of Local Services of the State Department of Revenue makes annual audits of city, town and county accounts, has the authority to approve the issue of town notes for the borrowing of money, publishes

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31. General Laws, c.44. See Van de Woestyne, Royal S., State Control of Local Finance in Massachusetts (Harvard University Press, Cambridge, Mass., 1935) for background and analysis, particularly of the comprehensive revision of 1913 that Van de Woestyne cited as "probably the most advanced legislation of its kind in the United States at that time." (p.50).

statistics on municipal finances and provides advice and guidance to city and town officers on all kinds of local financial problems.

In addition the Bureau of Local Assessment, also in the Division of Local Services of the State Department of Revenue,provides technical assistance to cities and towns in improving assessment practices, in arranging for revaluations and for local installations of the state's standard assessing system.[32]

When Massachusetts followed the lead of many states by setting up a new broad-gauged Department of Community Affairs in the mid-sixties to provide a variety of services to municipalities, first emphasizing housing and local planning, and gradually embracing all kinds of community development activities and assistance to cities and towns in general, it could be predicted that a schism in state responsibility for local financial management would emerge. As City of Boston officials associated with the tax policy project worked closely with their counterparts in the State Executive Office of Administration and Finance(which has jurisdiction over the State Department of Revenue) and particularly with this department's Bureaus of Accounts and

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32. St. 1978, c.514, which drastically reorganized the state's tax collection machinery, changed the name of the Department of Corporations and Taxation to Department of Revenue, abolished the three-member State Tax Commission and transferre its powers and duties to a new Commissioner of Revenue,and substituted a new internal organization consisting of four divisions, including a Division of Local Services made up of a Bureau of Accounts and a Bureau of Local Assessment.

Local Assessment and with their counterparts in the State Executive Office of Community Development (which has jurisdiction for the State Department of Community Affairs) and particularly with this department's Division of Community Services, they experienced direct contacts with the realities of this split personality. In brief, policy-makers in the State Executive Office of Administration and Finance, who face the conflict of making choices between state and municipal requirements for revenue and whose agencies use both regulatory powers and assistance in carrying out these roles, tend to be less responsive to the needs of municipal officials than their equals in the State Executive Office of Communities and Development, who perceive local officials as their primary constituency and whose functions are restricted to assistance to cities and towns. Thus, the eroding effects of recent economic recessions and the negative impact on municipal finances of the state's own fiscal difficulties have magnified the significance of this state schism in the supervision and support of local financial management. A comprehensive study of state-local financial management completed several years ago proposed a detailed list of specific changes in municipal accounting/auditing standards, in guidelines for municipal financial management and in state technical assistance in many categories of local financial practices in order to improve and tighten the fiscal operations of local government. And to enhance the state's capability

to provide fiscal services to cities and towns, this report strongly recommended that services to local government and the supervision of local government finances be consolidated within a single state agency, without designating a preference for one or the other of the two state agencies now providing such services[33]. (See Appendix A for a summary of the study's recommendations.)

State Supervision of Local Assessing

The decision of the State Supreme Judicial Court in the so-called Sudbury case[34] crystallized prevailing opinion that the state's supervisory role over local assessing practices had become weak and ineffectual and that the quality of the state's equalization function, so critical in many areas of state-local fiscal relations, lagged far behind the growing sophistication and progress of many states. In summarizing the Master's findings as part of its Sudbury case decision, the court confirmed the widespread practice in Massachusetts of fractional valuation of real estate for tax purposes; pointed out that revaluation tended to be a "one-shot performance", soon out of date; emphasized that the sales data used to establish equalized valuations did not include enough information "to ensure that only arm's -length sales were used" and that the infrequency of sales of commercial

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33. Massachusetts League of Cities and Towns, Report of the Task Force on State/Local Financial Management, Dec.,1976, p. 23.

34. Sudbury v. Commissioner of Corporations and Taxation & Others, 366 Mass. 558.

and industrial property meant that sales data for these categories of property were inadequate; concluded that the State Tax Commission had no long-range plan for staffing and electronic data processing; and indicated that the Commission had neither promulgated uniform standards for assessment at fair cash value nor invoked sanctions to enforce full value assessments[35].

Since the defendants in the Sudbury case had contended that their functions were advisory and educational only, perhaps the most significant finding of the Sudbury case was that the commissioner [of Corporations and Taxation] and the [state tax] commission "have underestimated their power and authority[36]. The Supreme Judicial Court's interlocutory decree declared that

> (1) the commissioner has the power and the duty to direct local assessors to take such action as will tend to produce uniformity throughout the Commonwealth in valuation and assessments; (2) the commission has the power and the duty to direct city and town officers to furnish such returns and statements relative to the amount and value of taxable property in the city and town as it deems necessary to determine and establish for each city and town an equalized valuation which shall be the fair cash value of all property in such city or town subject to local taxation as of January 1 in each even-numbered year; and (3) the functions

35. Idem, p. 560-561.

36. Idem, p. 569.

> of the commissioner and the commission in these respects are to command and not merely to advise or educate, and it is the legal duty of the assessors to obey their lawful commands.

If the Sudbury decision of 1974 validated the legitimacy of a strong state supervisory role over the local assessing function, the amended Classification Act of 1979 spelled out in considerable detail the scope and substance of this state role[37]. The State Commissioner of Revenue is held responsible by this new statute for establishing minimum standards of performance dealing with the administration of laws governing the assessment/classification of property; the methods of determining the fair cash value of different kinds of property for tax purposes; the qualifications of assessing personnel; and the adequacy of tax maps and other records. Elected or appointed local assessors have three years, from the effective date of this act, to acquire the minimum standards for assessor qualifications established by the state. Moreover, a majority of the assessors of a local board must be designated as professionally qualified before classification can be implemented. Thus, in substantially increasing the power of the State Commissioner of Revenue to upgrade municipal assessing practices and to enforce the establishment of full-value assessments, this legislation may turn out to be the catalyst for assessing reforms that have eluded Boston and many other municipalities in Massachusetts for over half a century.

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[37]. St. 1979, c. 797.

If the promise of new legislation is to be fulfilled, however, state and municipal officials responsible for property tax assessing in Massachusetts might take heed of the following conclusions in a recent report analyzing state roles in local government financial management:

> .....achieving professionalized assessment practices is a difficult task, because the political and technical pressures toward non-professional assessment are very intense at the local level. Accordingly, states that have sought to mandate high-quality assessment practices have found it necessary to monitor local assessments continuously, establish professional standards for assessment personnel, and provide technical assistance and training to local assessment offices.....[38]

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38. Peterson, Stallings and Spain, State Roles in Local Government Financial Management, op.cit., p. 53

APPENDIX A

SUMMARY OF RECOMMENDATIONS*

I. Accounting and Auditing Standards

1. Establishment of a Local Government Services unit within the State government responsible for an expanded range of duties including supervision, development of local government management, and development of information systems.

2. Annual audit of financial statements.

3. Use of CPA's or state-certified public accountants to perform audits.

4. Publication of audit guidelines.

5. Establishment of procedures for submission and review of audits.

6. Adoption of GAAFR standards as developed by the National Committee on Governmental Accounting (NCGA).

7. Publication of a uniform local government financial systems and procedures manual. Implementation through on-site assistance.

II. Financial Planning and Management

8. Development of guidelines to determine when state intervention is required and development of procedures to implement such intervention.

9. Assignment of the Local Government Services Unit to prepare a comprehensive revision of the statutes dealing with local debt.

10. Establishment of a joint MLCT-State study commission to examine the issue of "state mandates."

11. Design, implementation and continuing administration of a uniform data collection system.

12. Promulgation of financial disclosure guidelines for use by Massachusetts governments in the issuance of debt.

13. Diversification of local government revenue sources and/or state aid which is dedicated to general budget support and not earmarked for specific purposes.

III. Technical Assistance

14. Preparation of a schedule of local aid payments for the ensuing year within 30 days of passage of the state budget, and various other actions designed to improve cash flow, reduce short-term borrowing and improve communication on state aid and assessments.

15. Development of an Administrative Manual.

16. Implementation of various state statutes and development of existing state programs designed to assist and facilitate local management improvements.

17. Assistance in the preparation of bond prospectus disclosure statements.

18. Implementation of a cash management program through the vehicle of the Local Government Pooled Cash Investment Fund.

19. Publication of a budget guide for local government and establishment of minimum standards for budget documents.

20. Development of computer utilization at the local government level.

21. Sponsorship of a second session of the "Cherry Sheet" conference held annually since 1974.

22. Adoption of standards for the employment of professional appraisers by local boards of assessors, either singly or on a shared basis. Adoption of standards and procedures for the accreditation of appraisers.

23. Establishment by the Insurance Commissioner of a staff capacity to assist local governments in risk management.

IV. Organizational and Financing Options

24. The provision of services to local government and the supervision of local government finances should be unified in one agency.

25. Activities which are regulatory and supervisory in nature should be paid by the state.

26. Activities which are service oriented should be assessed to local governments and paid into a revolving fund established to separate the financing of local government services from the state appropriations process.

27. An Advisory Board comprised of local government officials should be established to oversee the program of the Local Government Services Unit. This Board should be established by the Governor now, prior to initiation of any reorganization proposals affecting the issues covered in this report. Membership on the Advisory Board should be selected by the Governor from a list of candidates to be nominated by the municipal associations.

*Massachusetts League of Cities and Towns, Report of the Task Force Report on State/Local Financial Management, op.cit., p. 3-5.

2. "Tax Relief and Reform in Massachusetts",
John Avault, Alexander Ganz, Daniel M. Holland,
Published in National Tax Journal, June 1979,
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TAX RELIEF AND REFORM IN MASSACHUSETTS**

JOHN AVAULT, ALEX GANZ AND DANIEL M. HOLLAND*

I. Introduction

WE in Massachusetts have long been concerned with the need to roll back property tax levies. They are the highest in the Nation. In 1977 Massachusetts ranked highest in terms of effective tax rates for single family homes (3.6 percent), property taxes per capita ($491), and as a percent of state personal income (7.4 percent). While the property tax as a percentage of total state-local taxes fell between 1967 and 1977 from 43 to 36 percent nationally and from 51 to 42 percent in California, in Massachusetts the decline was very modest—from 52 to 49 percent. (A.C.I.R., 1979).

It is illuminating to compare what has been happening in Massachusetts with the recent California experience.

In both states, the voters have expressed a strong preference for property tax relief. In Massachusetts, this can be understood against a background of property taxes that are the highest in the country, plus a court-imposed mandate to equalize effective rates on all classes of property which would cause a shift of property tax burden from commercial and industrial properties to residential. In California, where property taxes are not as high, the trigger appears to have been the rapid rate of increase in the tax, particularly on residential properties.

Both in California and Massachusetts, tax administration has been important to the outcome. Property tax administration in California gets a high rating. Valuations are kept current, and assessment-sales ratios show commendably low coefficients of dispersion. But the sharp increases in property tax, although they reflected appreciations in property values, caused resentment, particularly among homeowners. One important contributing factor is that with residential property values rising more rapidly than commercial and industrial, efficient property tax administration resulted in a shift of property tax burden to homeowners.

Administrative practice was also an important factor in Massachusetts' property tax problem. The quality of property tax administration in Massachusetts can only be described as poor. In many jurisdictions, assessments are hopelessly behind market values, and characteristically, assessments are at different fractions of market value for different classes of property, and within each class assessment sales ratios are characterized by dispersions that fall outside acceptable guidelines. Property taxation in most cities and towns has, *de facto*, violated the equal taxation clause of the State's constitution. Whether by neglect or design (or more likely, a combination of both) in many jurisdictions residential properties have been underassessed relative to industrial and commercial properties. Undoing this discrimination, as required by the Sudbury decision, would result in a substantial shift of property tax burden.

Both California and Massachusetts, then, faced the problem of a shift of property tax burden to homeowners. The two states responded differently. California adopted a substantial cut in property tax evenhandedly across all classes of property. Proposition 13 did not address the problem of burden shifts to homeowners. Indeed, by providing that on sale all properties are brought into the tax base at current market value, Proposition 13 will tend to intensify the shift. With appreciation of residential values outstripping other classes, and with residential properties turning over more rapidly than commercial and industrial, the shift of property tax burden (at lower absolute levels of tax, of course) to homeowners will be exacerbated.

Classification, Massachusetts' response

*Respectively, consultant economist, Boston Redevelopment Authority; Director of Research, Boston Redevelopment Authority; Professor of Finance, Sloan School of Management, Massachusetts Institute of Technology.

to an impending shift of property tax liability to residences, which legalized the inclusion of varying fractions of property value in the tax base, might have served California as a more finely-tuned alternative to Proposition 13. In Massachusetts, the inclusion ratios adopted for the various classes of property sought to approximate the effective rate differentials that already existed on average.

With classification, the process of equalization of property values for tax purposes as required by the Sudbury decision becomes politically possible. And with equalized values, the property tax is a viable revenue measure. However, as discussed in our paper, in many jurisdications (we illustrate the point with Boston data) dispersion of assessment-sales ratios *within* a given property class are so great, that in reality, a substantial cut in property tax will be needed before equalization, even with classification, can be implemented without significant hardship and dislocation. And, as we also discuss later in the paper, there are other reasons—related to the State's economy and the revenue structure—to support a major rollback in the property tax. If that were accomplished, with an enhanced role for sales taxation, for example, to replace some of the revenue lost by the property tax rollback, Massachusetts would have modified its presently strongly unbalanced revenue structure—highest among the states in the weight of property tax, and among the lowest in the role assigned to sales tax—to a mix of income, property, and sales taxation much closer to the national average, thereby achieving a degree of "balance" as called for by the Master Tax Plan Commission almost a decade ago. Ironically then, under the spur of "fiscal crisis" and "taxpayer revolt," Massachusetts has an opportunity to engineer the major reforms in its revenue structure that careful study, analysis, and reasoned debate could not accomplish.

California, on the other hand, appears to have taken a retrograde step. By dint of Proposition 13, California will undo the balance that has characterized its revenue structure, and move toward "excessive" (as measured by departure from the national average) reliance on income and sales taxation.

II. Classification

In November 1978, the voters of Massachusetts approved by a two to one margin an amendment to the State Constitution calling for the differential taxation of property by class within individual jurisdictions. A similar measure had been rejected in the 1970 election by an equally large majority, but two significant events intervened between the two ballots to turn the score around. One was the "taxpayer revolt" and the cry to lower and control residential taxes. The other was the Massachusetts Supreme Judicial Court's 1974 Sudbury Decision which reaffirmed the existing requirement that all properties be taxed at the same *ad valorem* rate within each of the 351 cities and towns. The decision also established a mechanism to enforce equalization.

Property taxes are an especially significant part of homeowner and renter budgets in Massachusetts. See Table 1. If taxes had been equalized instantly on election day (impossible, of course; but an interesting thought-experiment) and balanced in equilibrium with the new values that could result through tax capitalization (see Appendix), residential properties throughout the State could have suffered a net increase of $179 million (a 9.8 percent increase in burden) under 100 percent or enjoyed a savings of $145 million (7.9 percent) under classification.

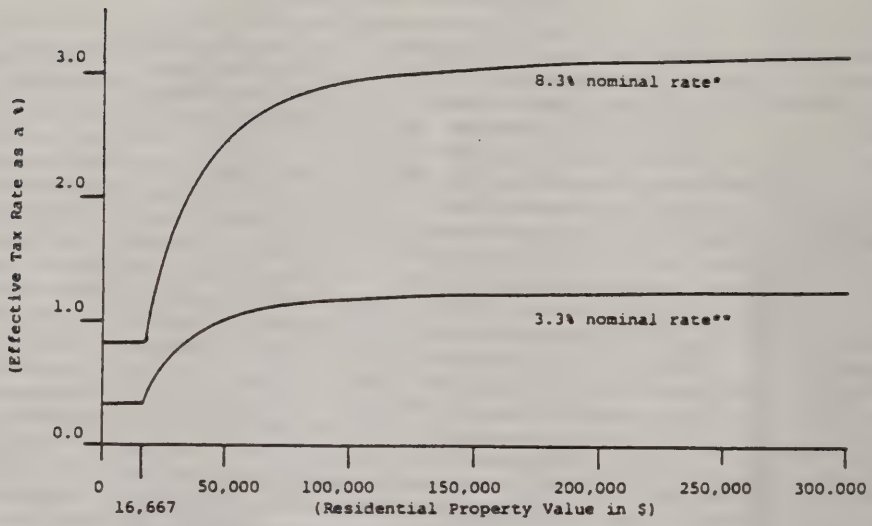
The classes and associated assessment/value ratios to become effective on or after January 1, 1979 in equalized communities are:

1. Residential (including income apartment properties)	40%
2. Commercial	50%
3. Industrial	55%
4. Open Space	25%

In addition, each Residential parcel receives a $5,000 reduction from the 40 percent level. This exemption is additional to all other exemptions that presently exist (e.g., elderly, widow, veteran).[1]

Chart 1

PROGRESSIVITY SCHEDULE FOR RESIDENTIAL
PROPERTY TAXES UNDER THE MASSACHUSETTS CLASSIFICATION LAW



Other effective tax rates are:
* Commercial 4.17, Industrial 4.58, Open Space 2.08, Personalty 8.3.
** Commercial 1.67, Industrial 1.83, Open Space .83, Personalty 3.3.

However, under no circumstances may the assessed value go below ten percent of full market value.

Open space is defined as conservation land and designation requires a non-development contract with the local assessor stipulating a retroactive assignment to another class with attendant back taxes due should the contract be broken and the land developed. Vacant land that does not qualify as Open Space will be placed in the class appropriate to its zoning and suitable development use. Personal property[2] is to be assessed at full value. But much of Personalty is utility equipment[3] and a "hold harmless" amendment to the classification law exempts all real and personal property of gas and electric companies from the property tax. They are made subject to a special new tax that is designed to keep their share of overall local tax burden at the same level it held in FY 78, subject to change through the growth or decline of "book value."[4]

The $5,000 lump sum exemption to be deducted from the 40 percent assessment of all Residential properties results in a special schedule of relative effective tax rates keyed to property value. See Chart 1. The effect is progressive, especially in the $16,700 to $50,000 range. Consequently, small residential properties will continue to enjoy a favored position with respect to large investor-owned apartments. This schedule of graduated rates will become less pronounced over time as values rise to the flatter side of the curve. To the extent that low-income households live in low-value houses, the tax will have a progressive incidence within jurisdictions. Since properties that have experienced little value growth are likely to be over-assessed (Engle, 1975) as well as low value, the "graduated property tax" should

Table 1

PROPERTY TAXES AS A PERCENT OF RESIDENT INCOME

Cities and Towns by Population Class	Per Capita Income	All Taxes	Residential Taxes		
			Current	100%	Classification
Boston	$5,196	13.31	4.76	5.83	4.25
50,000 or more	5,692	9.52	4.94	5.75	4.56
25,000-50,000	6,211	8.30	5.36	5.90	4.97
10,000-25,000	6,204	7.85	5.81	6.00	5.32
Less than 10,000	5,816	7.90	5.72	5.92	5.23
Massachusetts	5,945	8.63	5.35	5.87	4.92

Source: BRA Research Department. 1977 income estimates; FY 1978 tax levies.

bring especially dramatic relief to many declining urban neighborhoods.[5]

Before a city or town can implement classification, the State Revenue Department must first certify that an appraisal of "fair cash value" has been made for each parcel. The task of equalization still remains.

Of course, the classification statute does not have any direct effect on total levies and so we must still have one loser for every winner at equalization. However, the gains and losses will not be as great as they would be under 100 percent assessment. See Table 2.[6]

The following three tables summarize some illustrative estimates of how taxes, effective rates, and values might have adjusted in concert if equalization had been accomplished by fantasy fiat in Fiscal Year 1978, our "current" base year. To take the fantasy further, we have assumed that absolute tax changes are immediately and fully capitalized at specified rates and that assessors would anticipate this, assigning assessments based on "equilibrium" market values. (See Appendix.) Unless otherwise indicated, all estimates that involve equalization embody these assumptions. We have followed this course not because we believe that these assumptions are correct or even realistic, but because we cannot pretend to have an accurate model of the complex matrix of actions and interactions that will actually transpire over time.

Table 2 indicates that State-wide implementation of classification could bring about seven and nine percent cuts in the aggregate tax bills for one and two family homes, respectively. Three family homes, which are concentrated in older and larger urban centers, might get a twenty percent reduction. Offsetting these reductions plus a ten percent decline in taxes on apartments are eight and six percent increases for commercial and industrial parcels. Increases are also indicated for residential-commercial, mixed-use properties, vacant land, and farm land; but we have little confidence in these estimates due to the weakness of the base data in these areas and the necessity for special assumptions.

In Table 2 we find that equalization's impact on individual property types varies across cities and towns. In the larger cities, single family homes and commercial and

Table 7

1)

AVERAGE TAX BILLS : CURRENT AND AT EQUILIBRIUM AFTER EQUALIZATION UNDER 100% OR CLASSIFICATION
LEVY AND PERSONALTY TAXES ARE TOTALS IN $M

	Levy	R1 1-Fam.	R2 2-Fam.	R3 3-Fam.	R4 Apts.	RC Mixed	C Commer.	I Indus.	AH Farm	L Land	P Personalty	
Boston	$441.3M	1,365	1,449	1,521	6,857	6,247	26,317	42,852	6,238	962	$62.5M	Current
	-	2,062	1,926	1,754	6,565	8,112	24,589	37,696	3,960	1,807	31.4	100%
	-	1,410	1,281	1,117	5,632	8,236	26,516	42,828	5,929	1,710	66.4	Classification
Population More than 50,000	1,296.8	1,379	1,463	1,385	5,092	4,092	12,740	27,054	4,423	458	149.3	Current
	-	1,704	1,769	1,565	4,882	4,666	11,303	21,755	3,695	719	80.8	100%
	-	1,333	1,344	1,086	4,415	4,919	13,043	26,848	6,649	732	174.7	Classification
Population 25,000-50,000	659.0	1,326	1,321	1,334	4,293	2,761	6,572	20,128	664	199	56.0	Current
	-	1,471	1,511	1,474	4,239	2,394	5,802	15,906	380	251	34.0	100%
	-	1,229	1,219	1,129	4,146	2,825	7,347	20,527	744	269	69.3	Classification
Population 10,000-25,000	671.5	1,295	1,175	1,285	5,221	2,141	3,671	14,704	1,016	198	39.6	Current
	-	1,346	1,210	1,314	4,947	1,995	3,358	12,586	763	259	28.1	100%
	-	1,181	1,026	1,148	5,293	2,526	4,487	17,383	1,740	205	56.5	Classification
Population Less than 10,000	332.9	957	1,084	1,190	2,875	1,573	2,423	9,441	816	163	24.6	Current
	-	993	1,127	1,221	2,793	1,469	2,225	8,212	490	201	16.6	100%
	-	867	1,001	1,115	2,923	1,890	3,068	11,461	1,059	161	34.3	Classification
State of Massachusetts	2,960.2	1,250	1,358	1,366	4,840	2,799	7,578	19,623	885	225	269.5	Current
	-	1,304	1,577	1,527	4,658	2,882	6,756	15,971	583	306	159.5	100%
	-	1,161	1,242	1,096	4,380	3,270	8,163	20,788	1,276	282	334.9	Classification

1) All figures are actual or "as if" for Fiscal Year 1978.

Table 1

AVERAGE EFFECTIVE TAX RATES (%)[1]: CURRENT AND AT EQUILIBRIUM AFTER EQUALIZATION UNDER 100% OR CLASSIFICATION

	Average[2]	R1 1-Fam.	R2 2-Fam..	R3 3-Fam.	R4 Apts.	RC Mixed	C Commer.	I Indust.	AH Farm	L Land	P Personalty	
Boston	7.8	4.3	5.2	6.5	8.9	5.5	9.3	10.4	21.7	3.3	16.5	Current
	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	100%
	7.8	4.5	4.4	4.1	6.5	8.5	9.5	10.4	18.9	7.6	17.5	Classification
Population More than 50,000	5.7	3.9	4.4	5.5	6.5	5.8	7.9	8.7	6.8	3.4	11.3	Current
	5.9	5.2	5.9	6.6	6.1	7.0	6.5	6.1	5.2	6.3	6.1	100%
	5.6	3.7	3.9	3.9	5.2	7.7	8.2	8.5	14.3	6.5	13.3	Classification
Population 25,000-50,000	3.5	3.0	3.4	3.8	4.0	4.9	4.1	5.1	6.4	2.4	5.7	Current
	3.5	3.4	4.1	4.4	3.9	4.0	3.5	3.7	3.0	3.2	3.4	100%
	3.5	2.7	3.1	3.0	3.8	5.1	4.8	5.3	7.6	3.4	7.0	Classification
Population 10,000-25,000	3.1	3.0	3.2	3.3	3.5	3.6	3.6	3.9	4.3	2.2	4.1	Current
	3.1	3.1	3.3	3.4	3.3	3.3	3.2	3.2	3.0	3.0	2.9	100%
	3.1	2.7	2.7	2.9	3.6	4.5	4.7	5.0	9.9	2.3	5.8	Classification
Population Less than 10,000	2.3	2.3	2.4	2.4	2.5	2.5	2.7	2.7	5.3	1.5	3.2	Current
	2.3	2.4	2.5	2.5	2.5	2.3	2.4	2.3	2.7	1.9	2.2	100%
	2.3	2.0	2.2	2.2	2.6	3.1	3.6	3.4	7.9	1.5	4.5	Classification
State of Massachusetts	3.8	3.0	3.8	4.9	5.2	4.4	5.6	5.5	5.0	2.2	6.7	Current
	3.9	3.4	4.7	5.7	4.9	4.5	4.8	4.1	2.9	3.2	3.9	100%
	3.8	2.7	3.4	3.6	4.5	5.4	6.3	6.0	8.7	2.4	8.3	Classification

1) All figures are actual or "as if" for Fiscal Year 1978.

2) Although constant levies are central to the ceteris paribus environment of these estimates, "Average" effective rates are sometimes seen to change due to a presumed impact of capitalization on the tax base.

Note: The effective tax rates that would prevail under 100% equalization are not the same for all property types within a group of communities due to the uneven distribution of property types among high tax and low tax jurisdictions.

Table 4

AVERAGE PROPERTY VALUES [1] : CURRENT AND AFTER EQUILIBRIUM TAX CAPITALIZATION
UPON EQUALIZATION UNDER 100% OR CLASSIFICATION
SUM AND PERSONALTY VALUES ARE TOTALS IN $M

	Sum	R1 1-Fam.	R2 2-Fam.	R3 3-Fam.	R4 Apts.	RC Mixed	C Commer.	I Indust.	All	L Land	P Personalty	
	$5,622	31,563	27,809	23,387	76,697	113,319	281,962	411,371	28,761	28,819	$378.9	Current
Boston	5,319	24,859	23,220	21,146	79,132	97,774	296,361	454,335	47,735	21,780	"	100%
	5,667	31,133	29,426	27,269	86,914	96,739	280,302	411,575	31,337	22,593	"	Classification
	22,744	35,735	33,051	25,275	78,735	71,121	161,192	312,566	65,010	13,628	1,315.9	Current
Population	22,027	32,612	30,107	23,549	80,483	66,338	173,167	356,724	71,074	11,451	"	100%
More than 50,000	23,001	36,188	34,189	28,156	84,376	64,234	158,662	314,280	46,460	11,345	"	Classification
	18,918	44,474	38,774	35,091	108,594	56,407	159,619	392,036	10,395	8,392	986.6	Current
Population	18,677	43,079	36,949	33,743	109,046	59,466	166,036	427,217	12,761	7,959	"	100%
25,000-50,000	19,066	45,405	39,758	37,064	109,825	55,877	153,165	380,756	9,726	7,810	"	Classification
	21,437	43,339	36,574	38,752	149,067	59,866	102,956	372,999	23,606	9,002	967.3	Current
Population	21,318	42,851	36,235	38,471	151,354	61,076	105,558	390,648	25,715	8,492	"	100%
10,000-25,000	21,632	44,435	38,005	40,068	148,484	56,658	96,153	350,678	17,575	8,936	"	Classification
	14,358	42,070	44,690	49,024	112,944	63,859	89,721	352,263	15,444	10,680	769.1	Current
Population	14,280	41,725	44,283	48,717	113,634	64,722	91,369	362,500	18,159	10,365	"	100%
Less than 10,000	14,467	42,934	45,490	49,741	112,508	61,218	84,350	335,429	13,420	10,700	"	Classification
	77,457	41,555	35,791	28,127	93,632	64,279	134,961	354,689	17,852	10,128	4,038.9	Current
State of	76,302	40,265	33,691	26,584	95,153	63,585	141,816	385,118	20,366	9,452	"	100%
Massachusetts	78,166	42,413	36,911	30,725	97,473	60,360	130,088	346,645	14,596	11,656	"	Classification

[1] All figures are actual or "as if" for Fiscal Year 1978.

industrial properties would experience little change on average, while there is a noticeable shift onto commercial and especially industrial realty in small communities. The cuts in the multi-family housing sector (R4) in the large cities diminish with city size, turning to slight increases in the smaller towns. Section III shows, however, that these variations are minor compared to the burden shifts that could occur within a single property type in a given city or town.

Equalization under the rules of either 100 percent or classification leads to a narrowing of effective tax rates in central cities relative to the State averages for commercial and industrial realty. Currently, the effective rate on commercial property is forty percent higher in cities of over 50,000 population than for Massachusetts as a whole. Full value assessment would reduce the margin to thirty-five percent and classification would reduce it to thirty percent. Industrial rates are now fifty-eight percent higher than average in these cities but that would fall to forty-nine percent under 100 percent and forty-two percent under classification. The competitive tax rate position of the cities with respect to one-family homes would worsen under equalization as they move from a level now thirty percent higher than the State average to one that is fifty-three percent over the norm at 100 percent and thirty-seven percent steeper with classification. This realignment may not be of sufficient magnitude to exert any influence on locational decisions, but if there is an effect, it seems that it would favor the revitalization of central cities as work places and reduce development in more suburban and rural areas which are on record as favoring less growth of this type (Massachusetts Growth Policy Report, 1977).

Although we do not believe that the tax capitalization process is likely to occur precisely as we have modeled it, we do feel that some capitalization will accompany tax changes that have not been fully anticipated and that are regarded as final. Rather than immediate and full capitalization we might see a gradual and partial adjustment. Even if we could observe the process carefully as it unfolds, we might not be able to interpret it coherently. Regardless of the mechanism, the presence of tax capitalization in any form has implications for wealth positions. Table 4 is an illustration of value changes implicit in the simple value adjustment process we have assumed. Some of the value effects are dramatic, but they are for group averages and existing dispersions within groups often dwarf the variations among groups.

III. The Importance of Dispersion

While classification appeared to be a necessary pre-condition for property tax assessment reform, it is not a sufficient condition. The fractions of assessed value established in the shelf bill for different classes plus the $5,000 residential exemption tend to maintain something like their present property tax liability for each major class of property after equalization. See Tables 2 and 6. But in many cities and towns *within each class of property there are very pronounced dispersions* around the mean assessment-sales ratios. Thus, Charles C. Cook observed that ". . . removal of intra-class dispersion represents a far greater effect upon individual tax bills than does the difference between 100 percent assessment and classification."[7] (Cook, p. 3).

In many cities and towns in Massachusetts therefore, equalization, *even with classification*, would mean a substantial increase in property tax liability for a large number of parcels in a class for which the "typical" experience would be a decline or modest increase.

How diverse the experience within particular classes of properties could be is summarized for one family (R-1), two family (R-2), and three family (R-3) residences in Boston in Table 5. In evaluating the estimates in the Table, we should keep two conditions in mind: 1) The "equilibrium" (after the capitalization of all tax changes has occurred) value tax levies city-wide for these three classes show the following average tax changes from the present level under equalization with classification: R-1, a change of plus three

Table 5

ESTIMATED PERCENTAGE OF PROPERTIES EXPERIENCING THE INDICATED DEGREE OF TAX CHANGE ON AVERAGE BY WARDS - BOSTON

Percentage Tax Change	Increase		Decrease	
	Number	Percent of Total in Class	Number	Percent of Total in Class
Single Family Homes				
Under 10%	2,005	7	7,871	27
10 < 25	7,637	26	2,545	9
25 < 50	3,369	11	3,687	12
50 and over	1.183	4	1,282	4
Total	14,194	48	15,385	52
Two Family Homes				
Under 10%	772	4	3,725	19
10< 25	4,110	21	3,057	16
25< 50	1,936	10	2,618	13
50 and over	539	3	2,723	14
Total	7,357	38	12,123	62
Three Family Homes				
Under 10%	3,386	20	0	0
10 < 25	2,139	12	828	5
25 < 50	0	0	6,110	36
50 and over	498	3	4,232	25
Total	6,023	35	11,170	65

Note: Condominium residences are not included in these estimates.

percent, R-2 minus eleven percent, R-3 minus twenty-six percent. 2) The responses of taxpayers are asymmetrical. Politicians are likely to perceive more keenly the audible anguish of the forty-eight percent of single family residences that will experience a tax increase than the muted gratitude of the 52 percent who would enjoy a property tax decrease.

But even these data, based on averages for each of the City's wards, fail to capture the full force of the dispersion of property tax liability changes that could be expected under equalization even with classification. *Within each ward within each class of property*, the coefficients of variation of the assessment-sales ratio are typically large.

A similar range of diversity in tax change would characterize the array of Commercial and Industrial properties in Boston. In the aggregate, the estimated tax change for Commercial properties in Boston under equalization with classification is estimated as minimal, about one percent. But this hides the major difference between "old" properties (generally those built before 1960) and "new" properties, many of which currently benefit from informal arrangements that limit their property taxes. The data do not permit precise figures, but we can esti-

mate roughly that Class A office space (highest quality) would experience an average tax rate increase of about fifty-two percent, Class B space a tax decrease, on average, of about ten percent, and Class C office buildings, would enjoy a cut in property tax of about twenty percent.

Property tax reform—with "reform" covering both major improvements in administration and a substantial cut in property tax rates—has long been considered the necessary first and primary step in fiscal reform for Massachusetts. Now it is clear that the two requisites of property tax reform are inseparable. We cannot improve that levy's administration and establish an up-to-date and accurate structure of relative values in jurisdictions across the state without, at the same time, lowering substantially the amount collected by the property tax. On the other hand, cities and towns are legally required to get on to the equalized tax base. Of course, "foot-dragging" is always possible and sometimes tempting, but winning the battle of classification would be a Pyrrhic victory if the war against inequitable assessments were lost.

Fortunately, the temper of the times appears favorable to a sizable shrinkage in the role the property tax plays in the Commonwealth's state-local revenue structure.

IV. Rolling Back the Property Tax

The prospects for substantial cuts in the property tax in Massachusetts in 1979 and 1980 are good. The property tax burden was the number one issue in the recently concluded gubernatorial election, with both candidates committed to some rollback in it. The winner, Governor King, had made a specific pledge to roll back property tax levies by one-sixth, ($500 million) in the first year. As a forerunner to recent events, the State legislature in July 1978 approved a measure allocating forty percent of each year's increment in State tax revenue for distribution to cities and towns through a formula favoring older urban areas, where property taxes are highest. The passage of classification has not lessened popular demand for property tax relief. In fact, the contrary may be true since the combination of equalization and levy reductions would mean moderate cuts for many taxpayers under classification rather than large cuts for a few Commercial and Industrial properties.

Current debate centers on the degree to which rollbacks should be accomplished through temporary "relief" by mandating commensurate reductions in levies and local expenditures or through structural reform that replaces lost revenues with other tax sources. Boston exemplifies the crucial needs for both a property tax reduction and replacement revenues:

Need for a Property Tax Levy Rollback

—*Improve Cash Flow of Income Properties*

For many private multi-family properties in Boston, the effective property tax rate is 13 percent of capitalized value and 36 percent of gross rental income. With classified equalization and $100 million (23 percent of the current levy) rollback in property tax levies, the effective tax rate would be reduced to five percent of value and 21 percent of gross rental income. For older commercial property, the effective tax rate is 15 percent of capitalized value and 33 percent of gross rental income. With classified equalization and a $100 million rollback in property tax levies, the tax rate would fall to six percent of value and 21 percent of gross rental income.

—*Accommodate Equalization and Classification*

Under the current *de facto* tax system in Boston, homeowners are unevenly favored with lower effective tax rates. To accommodate tax equalization and classification without unduly raising tax bills for many property owners, alternative revenue sources are needed to reduce the property tax levy. Experimental calculations show that a 30 percent levy reduction would permit a 27 percent cut in taxes for the average single family home and for commercial and industrial realty, and a 43 percent cut for multi-family

Table 6

BOSTON SUMMARY EQUALIZATION ESTIMATES

100%	Tax Rate[1]	Average Percent Tax Change R1 1-Family	R2 2-Family	R3 3-Family	R4 Apts.	RC Mixed	C Commer.	I Indus.	AH Farm	L Land	P Personal
Initial Impact	$78	81	50	20	-12	42	-15	-24	-63	135	-52
Equilibrium	$82	51	32	15	- 4	29	- 6	-12	-36	87	-49
Equil. with Personal Property Held Harmless	$72	40	23	6	-11	19	-13	-18	-41	73	0
Equil. (12% Levy Reduction)	$67	34	18	2	-15	14	-17	-22	-43	65	-58
Equil. (30% Levy Reduction)	$48	8	-4	-17	-32	-8	-34	-38	-55	32	-70
Classification											
Initial Impact	$190	6	-19	-45	-28	55	2	1	-12	127	7
Equilibrium	$188	3	-11	-26	-17	31	1	0	-5	77	6
Equilibrium (12% Levy Reduction)	$154	-9	-22	-35	-28	16	-10	-11	-13	56	-9
Equilibrium (30% Levy Reduction)	$109	-27	-37	-48	-43	- 7	-28	-27	-25	23	-10
Equilibrium (50% Levy Reduction)	$71	-48	-55	-63	-60	-33	-48	-47	-42	-12	-53

1) Per $1,000 assessment.

Note: Average figures mask great diversity within property types. The estimates are most useful for comparing the relative effects of the various equalization alternatives. The FY 1978 Boston levy was $441,311,000 and the 12, 30, and 50 percent reductions represent $52,703,000, $132,393,000, and $220,656,000 respectively. "Initial Impact" refers to a current value, no capitalization case.

Table 7

A MUNICIPAL SPENDING BINGE?
(Total Expenditures 1945-1978 in Millions of Dollars of Constant Value at 1978 Prices)

	City of Boston	39 Cities	351 Cities & Towns
1945	$452	$1,355	$2,027
1949	608	1,718	2,157
1951	529	1,628	2,500
1953	550	1,746	2,693
1955	536	1,757	2,832
1956	552	1,779	2,889
1957	553	1,672	2,683
1960	557	1,909	
1962	577	2,029	3,264
1963	608	2,120	
1964	634	2,216	
1965	612	2,201	
1966	668	2,306	
1967	752	2,222	3,749
1972	779	2,368	4,294
1976	669	2,294	4,421
1977	677	2,328	4,440
1978	674	2,301	4,370

Source: BRA Research/Carlaw and Kelly/December 1978 from Massachusetts Department of Corporations and Taxation, U.S. Census of Governments, and Massachusetts Taxpayers Foundation.

apartments. See Table 6.

—*Broaden Investment Incentives*

Virtually all major private new construction since 1960 has benefited from a tax abatement program which reduces property taxes by a third. With a 30 percent cut in the property tax levy, taxes on commercial and industrial properties would fall by over one fourth overall, thereby continuing tax incentives for new construction and improvements at a somewhat reduced level but with a broader scope, more even application, and greater certainty for developers.

Revenue Needs

—*Current Operating Expenditures*

Boston and other Massachusetts cities and towns have not gone on a spending binge. Expenditures, in real terms, are no larger than ten years ago. See Table 7. Boston municipal employment has been cut by 17 percent since 1971, and is below the level of 1956. All Massachusetts cities and towns will need revenue growth just to keep up with the cost of inflation affecting their current operations.

—*Public Infrastructure Investment Needs*

Since 1976 both the City and the Federal government have been curtailing public infrastructure investment in Boston. The City has been responding to the fiscal stringency of 1976 and the limited growth in revenue since. The Federal government has shifted from categorical grants,

largely involving infrastructure investment, to community development grants, largely for services programs.

A study of Boston's public infrastructure investment needs, currently underway, finds that the current and planned rate of public investment spending is substantially insufficient to maintain and replace important elements of the City's infrastructure.[8] Sewer and water facilities, streets and roads, for example, are on a planned replacement cycle that exceeds 100 years. The estimated deficiency in funding over the next five years is projected at one-fifth to one-third of projected needs for maintenance and replacement. Any proposed tax reform program should accommodate these needs.

V. Alternatives Open to Massachusetts

A Proposition 13 type proposal was narrowly defeated in the Massachusetts legislature in the last days of the 1978 legislative session in July. This proposal was aimed at reducing property tax levies by limiting taxation to 2 1/2 percent of property value. State-wide, this would have signified a levy cut of $952 million or 32 percent. For cities over 50,000 population, however, with an effective tax rate of 5.7 percent, the proposal would have meant a levy reduction of 48 percent, ($622 million), with no compensating replacement revenue. For Boston, with an effective rate of 7.8 percent, Proposition 2 1/2 would require a cut in property tax collections of 68 percent, which would come to almost half of the City's local revenues, or about 32 percent of total general revenue funds.[9]

Both expenditure levy limit proposals and measures to channel more of the State's income and sales tax receipts to localities have received strong support recently. Fiscal year 1980 will bring a four percent current dollar growth limit for property tax financed expenditures and tax levies. Increased State aid of about $200 million (6 percent of current property levies) is planned.

Massachusetts' relative over-reliance on the property tax for 33 percent of total state and local general revenue—compared with the national average of 22 percent[10]—strongly suggests that the goal of reducing the absolute level of the tax must involve broader fiscal reform that provides replacement revenues from other sources. A broadened sales tax base, a professional and business service excise, and revision of the flat-rate income tax have been suggested as mechanisms to finance property tax containment and cuts. An expanded role for fees and user charges is another possibility. The national average for charges and miscellaneous general revenues (for the state and local levels combined) was 16.6 percent of total revenue in 1977, while Massachusetts stood at 11.3 percent, and only the District of Columbia had a lower figure. Furthermore, the Commonwealth underutilizes the sales tax which accounts for 5.1 percent of state and local general revenue compared to the national average of 12.7 percent.[11]

Appendix: The Spirit of the Simulations, Sources of Data, Description of Methods

In designing the simulations on which much of our analysis is based, we chose to model a straightforward fantasy rather than attempt some guesses at a more complex reality. Our desire was to make clear the implications of a few simple assumptions. Revaluation estimates were performed "as if" they had occurred instantaneously at the end of the Fiscal Year 1978 control period. Immediate, full, and absolute capitalization of tax changes into value was assumed. We also assumed that assessors would act with perfect awareness of impending tax capitalization and revalue properties on the basis of their "equilibrium" market value.

The data on assessments and market values are based on those reported in the 1978 Equalization Survey of the Massachusetts Department of Corporations and Taxation. Boston market value estimates were supplemented by an independent sales price analysis. Assessed values are official figures for FY 1978. Market value estimates were inflated to mid-1978 levels under the assumption of a uniform eight percent annual growth rate.

In making this analysis, the conclusions are only as good as the data, i.e., the estimates of equalized value. There is much suspicion as to the predictability of this data and the analysis herein must be seen as illustrative and not predictive.

Anticipating Tax Capitalization and Estimating Equilibrium Taxes

A special problem implicit in property tax equalization is the mutual interdependence of property taxes and values. A property's taxes depend on its value while at the same time the value is influenced by taxes. Our "Equilibrium" calculations represent an attempt to estimate the point at which property values and equalized taxes are properly balanced.

Tax capitalization calculations for one, two, and three family homes are based on an assumption of constant allowable outlay for the sum of tax and mortgage payments. A capitalization rate of 10.4 percent reflects the constant payment schedule for a home fully financed at 8 1/2 percent over a twenty-year term. We treat all properties other than one, two and three family homes as investments purchased for the sake of the income they produce. We assume that a twelve percent rate of return is expected on the purchase price investment. Any change in tax bills is fully capitalized at that rate.

Equilibrium Estimates

The first step in calculating equilibrium values and taxes is to ascertain the income associated with business properties and the expenses associated with homeowners' properties. Since these concepts are two sides of the same coin, let us use the term Return to refer to both.

Defining:
- R_i = Return for property type i
- V_{ie} = Present equalized value for property type i
- T_{ie} = Present property taxes for property type i
- C_i = Tax capitalization rate for property type i where C = .104 for 1, 2, and 3 family homes and C_i = .12 for other realty.

We have $R_i = C_i V_i + T_{ie}$ as our starting point.

To calculate property taxes, we must further define:

- t = nominal tax rate
- p_i = the assessment to value ratio specified by the classification schedule
- B_i = the amount of assessed value specially exempted from taxation (i.e., the $5,000 residential parcel exemption).

Now the equilibrium market value for each real property type "i" (V_iE) is:

$$V_{iE} = \frac{(R_i + tB_i)}{(c_i + p_i t)}$$

In the above equation (tB_i) is the amount of taxes abated due to the special exemption and ($c_i + p_i t$) is the *ad valorem* rate by which tax and mortgage payments must be met for homeowner properties or by which profit demands and taxes must be met for income properties.

The assessed value based on this equilibrium market value is: $AV_{iE} = p_i V_{iE} - B_i$. Therefore, the equilibrium property taxes are: $T_{iE} = tAV_{iE}$

One special complication that arises from the adjustments of values to tax changes at different tax capitalization rates is the fact that the tax base and therefore the tax rate may change. For this reason, it was necessary to estimate the equilibrium tax rate "t" before attempting the above calculations.

To do this, we utilized the definition of tax rate as the property tax levy (L) divided by the total effective tax base of classification and capitalization adjusted assessments. Since Personal Property (V_{pp}) was assumed not to capitalize, it enters the formula separately:

$$t = \frac{L}{V_{pp} + \sum_{i=1}^{n} \frac{(R_i + tB_i)p_i}{C_i + p_i t} - B_i}$$

The correct value of "t" was approximated by successive iterations.

FOOTNOTES

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[1]A further argument against 100 percent was that since special clause abatements are established as a set amount to be subtracted from assessed value, the change from fractional to full value assessment would undermine the effect of these relief measures for those deemed especially needy.

[2]Taxable personalty in Massachusetts does not include the equipment of manufacturing industries.

[3]In the City of Boston for FY 1978 gas and electric property accounted for nearly two thirds of assessed personalty and paid 9.3 percent of the property tax levy.

[4]The formula for utility excise tax payments has some very interesting qualities. One is the simultaneity between excise tax payments and local property tax levies. To figure either of these levies or their shared tax rate, one must first determine the property tax base, the utility excise tax base, and the *total* amount of revenue needed from the combined taxes. Another important quality lies in the fact that changes in the utilities' share of overall tax burden depends

entirely on the growth or decline of local book value. With no addition of new facilities, book value and tax share would decline due to depreciation.

Key

We will use the following symbols to represent the involved quantities:

- AVu(78) = 1978 assessed value of all utility property (real and personal)
- AVn(78) = 1978 assessed value of all taxable non-utility property. These properties will constitute the new tax base after the removal of utilities.
- BVu(78) = Book Value of all utility property in 1978.
- BVu(c) = current Book Value of all utility property
- AVn(c) = current assessed value of all taxable non-utility property under classification.
- r(c) = current local tax rate
- Tu(c) = current utility excise tax
- Tp(c) = current non-utility property tax levy
- LC(c) = current combined utility and property tax levies (LC(c) = Tu(c) + Tp(c))

The Formula

$$\text{The Assessing Fraction } F = \frac{AVu(78)}{BVu(78)} \cdot \frac{AVn(c)}{AVn(78)}$$

and utility taxes $Tu(c) = F \times BVu(c) \times r(c)$

$$\text{now } r(c) = \frac{LC(c) - Tu(c)}{AVn(c)}$$

since the property tax rate is the property tax levy divided by the property tax base.

$$\text{So } Tu(c) = \frac{AVu(78)}{BVu(78)} \cdot \frac{AVn(c)}{AVn(78)} \cdot BVu(c) \cdot \left(\frac{LC(c)}{AVn(c)} - \frac{Tu(c)}{AVn(c)} \right)$$

which simplifies to

$$Tu(c) = LC(c) \cdot \frac{AVu(78)\, BVu(c)}{BVu(78)\, AVn(78) + AVu(78)\, BVu(c)}$$

We find

$$Tu(c) = LC(c) \cdot \frac{AVu(78)}{AVn(78)\,[BVu(78)\, BVu(c)] + AVu(78)}$$

The bracketed fraction represents the share of combined levy requirements that utilities will pay. If their book value does not change (BVu(78) / BVu(c) = i) their share remains the same as it was in 1978 since their share of taxes is then their share of the 1978 property tax base. If book value increases (BVu(78) < BVu(c)) their share of overall tax burden increases, while their share of payments drop if book value falls.

Notice that the current tax base of non-utility property assessments (AVn(c)) does not influence their tax bill. The only current factors that influence their tax bill are book value and combined levy. Although the combined levy influences their bill, the property tax rate *per se* does not.

The Tax Rate

Let us see how the tax rate (r(c)) that would apply to both utility excise and property taxes might be figured. The sum of utility taxes and property taxes must equal the combined levy requirement.

$$LC(c) = Tu(c) + Tp(c)$$

$$LC(c) = r(c)\, BVu(c)\, F + r(c)\, AVn(c)$$

so

$$r(c) = \frac{LC(c)}{\dfrac{BVu(c)\, AVu(78)\, AVn(c)}{BVu(78)\, AVn(78)} + AVn(c)}$$

[5]Professor Engle demonstrates for the Boston case that slow value growth resulted in relatively higher assessment/sales ratios due to slow and insufficient assessment response to value changes. Examination of his unpublished data shows average prices for single family houses to be twice as high in the fastest growing neighborhood as in the slowest growing area for the period 1970–1975.

[6]Here, and in the rest of this paper, our discussion of the effects of 100 percent and classification runs in terms of tax bill change, not ultimate incidence. Therefore, when we describe classification as forestalling a shift of a given amount of property tax burden from commercial and industrial property to residential property, we are literally correct, but not fully informative.

Property taxes on industrial and commercial properties are a cost of doing business. If these costs were fully shifted to consumers, and if all consumers lived in Massachusetts or Boston (or whatever other jurisdiction we were concerned with) then under any scheme of classification that "favored" residential property vis-à-vis industrial and commercial property, the lower property tax that the occupants of residential property would enjoy would be offset by the higher price of goods and services they consumed. But property taxes on business are not all shifted, and some of the tax that is shifted is exported, i.e., falls on consumers who live outside the particular jurisdiction under analysis.

To the extent that the property tax on industrial and commercial properties is shifted to consumers within the jurisdiction under analysis, our impact measure overstates the degree of tax burden shifting onto residents that is forestalled by classification.

A simple numerical example will illustrate the point: Assume Total Property Tax is now 1,000. Business and residential Property sectors should each "pay" 500, but Business (relatively over-assessed) "pays" 750, while residences (relatively under-assessed) "pay" 250. But 80 percent of the tax on business is shifted to consumers, and half of what's shifted is exported

outside the city. Occupants of residences within the city then bear 250 of tax directly and 300 indirectly (i.e., that part of the tax on business that is shifted but not exported). Under 100 percent both sectors would be liable for 500 of tax directly, and consumers would bear an additional 200 shifted by business.

To summarize: With all properties assessed at full value, the "direct" property tax burden (our impact measure) for residences would double—from 250 to 500. But the sum of the direct and indirect property tax liability on the occupants of these residences would not increase as much—up from 550 to 700.

[7]The supporting evidence cited by Cook on pages 2 and 3 of his remarks was summarized as follows:

> In a Lincoln Institute 1976 study, using state equalization figures, we found a median commercial property is assessed 19 percent more than single family residential; but in one out of five towns, commercial property was assessed lower than 84 percent of single family and in one out of five towns it was assessed at more than 175 percent. In 39 percent of the cases, commercial property was assessed relatively lower than single family residential property . . .
>
> More recent figures show if 100 percent assessment is implemented, in 77 percent of the cities and towns representing 63 percent of all parcels in the Commonwealth, the percent of tax shift from single family will be less than ten percent. In seven out of every eight cities and towns representing 78 percent of the parcels, it will not exceed twenty percent. In fact, in about one of every five cities and towns representing about ten percent of the parcels, the shift will be to residential parcels. In nine out of every ten cities and towns, the shift is less than the present single family intraclass coefficient of dispersion . . .

[8]The estimates that follow are based on as yet unpublished research of J. Chester Johnson, consultant, the Urban Institue, Washington, D.C.

[9]Derived on the basis of an effective tax rate of 7.8 percent (as in Table 3 of this paper), property taxes making up 69.4 percent of Boston local revenue (*The Fiscal Legislative Package of the City of Boston* 1977, p. 2), and property tax collections equal to 66 percent of Boston general revenues (*The Fiscal Legislative Package of the City of Boston*, Appendix Table III.)

[10]A.C.I.R., 1979.

[11]A.C.I.R., 1979.

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Providing Analytic Capacity for Local Urban Policy

The Boston Tax Policy Project

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Introduction

Many federal domestic agencies conduct research programs which fund university or consultant teams to work with state or local governments. In many of these efforts, the researchers attempt to supply an analytic model or technique to support a particular decision that must be made at the local level. One might expect the ultimate value of such research to be based on factors such as the level of funding and the quality of the investigators. Other less obvious factors also come to mind: the role of the program manager at the federal level, the strategy for bringing together the researchers and the public managers, the kinds of analytic support being developed. The full range of possible determinants of success in projects of this sort has not been carefully studied. Furthermore, the possible meanings of "success" have not been adequately explored. Closing these gaps in empirical knowledge could

Author's Note: Were it not for the cooperation of dozens of participants, this case study could not have been completed. I relied most heavily on the thoughtfulness and enthusiasm of Robert Weinberg and Michael Schneider, the assistance of Alex Ganz, and the valuable project documentation reports prepared by Joseph Slavet. The account of this case has been condensed from the original version prepared for the Research Department of the Boston Redevelopment Authority. The principal actors in this case read the full-scale draft version of my account of it and offered clarifications and elaborations, which have been reflected in the descriptions presented in this article.

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have direct policy implications for the management of this class of applied research.

The Boston Tax Policy Project, funded by the U.S. Department of Housing and Urban Development, offered a rare opportunity to examine the anatomy of such a research project.[1] Several generic questions were identified in advance as being of primary concern in this case study:

(1) What leadership characteristics are required to launch and direct a project of this type?
(2) How might one characterize the "success" of such a project?
(3) In what ways does the organizational life of an applied research project affect its success?
(4) In what ways are such projects inherently unmanageable?

These questions address different aspects of the production and utilization of knowledge in local government policy settings. To develop meaningful answers, the study was designed to view utilization "as an interactive process influenced both by time and context" (Larsen, 1980).[2] This article presents a chronological history of the Boston Tax Policy Project followed by some reflections and analysis.

A Chronological History of the Project

Beginnings: November 1975 to September 1976

In November 1975, Robert Weinberg, Director of the Boston University Public Management Program, went to Washington to visit Charles Orlebeke, Deputy Assistant Secretary for Policy Development and Research at the Department of Housing and Urban Development (HUD). Weinberg asked Orlebeke if HUD might be interested in funding research aimed at informing property tax policy in the city of Boston, with application potential to other urban areas. Weinberg had come up with this idea based on a prior discussion with James V. Young, then Boston's Collector-Treasurer. Weinberg had served as head of Mayor Kevin White's policy staff several years earlier, was particularly oriented to issues of public finance, and was generally interested in promoting research for public management. A federally sponsored grant, he reasoned, could help the city to get a head start on policy formation, since it seemed clear that difficult times were ahead.

Orlebeke saw Weinberg as a highly committed person who was convinced of the urgency of conducting high-quality, relevant research in this field. Despite his lack of expertise on the subject of property taxes, Orlebeke felt comfortable suggesting that Weinberg see Michael Schneider, a HUD Research Program Manager who worked in his office, to pursue the matter further.

Schneider was initially skeptical of the value of the proposed project when they got together in January 1976, but his interest grew as he got more familiar with it. Schneider felt comfortable with Weinberg and with the various participants in the proposed project. A property-tax project would fill a void in HUD's newly created Public Finance Research Program: Boston had one of the worst property-tax situations in the country. The city proposed that the grant be awarded to the Boston Redevelopment Authority (BRA), where Alexander Ganz, the BRA's Director of Research, could serve as Project Director. This was a natural choice, for HUD had supported the BRA in the past and Ganz, for years a property-tax expert, had a strong reputation as an economist. The BRA staff, furthermore, had a history of doing research for the city government, a mission and capability which was unique to Boston among the nation's cities.

Schneider told Orlebeke that he wanted to proceed and that Weinberg would be actively involved in the planning of the project even though it was being funneled through the BRA. Orlebeke was satisfied and told Schneider to encourage the submission of the proposal.

On February 26, Mayor Kevin White of Boston transmitted an unsolicited proposal from the BRA to HUD under the title "Development and Implementation of a Policy Planning Model for Evaluating Tax Structure and Tax Administration Modifications." The proposal requested support in the amount of $70,000 for a twelve-month period starting April 1, 1976. The proposal was well written and concise. As Weinberg pulled it together, he felt as if he were "fixing up a couple." Weinberg knew that the project represented a somewhat unnatural marriage. HUD was attracted to the project because it would create a data base and the analytic capacity to work on important generic policy questions. The city actors who agreed to sponsor the project (aside from the BRA Research Office) were not yet requesting such data and capacity. To them, the project represented the beginning of a process whereby these issues could begin to be refined and resolved.

The proposal itself described a straightforward project. Its acknowledged impetus was the uncertain but significant impact of the court-ordered full valuation of the city of Boston (in response to the 1974

Sudbury v. State Tax Commission decision). The proposal requested funds to further develop and refine an existing computer-based simulation model. The model, it was cautiously stated, "should be easily adapted to other jurisdictions (besides Boston), provided sufficient data exists." The project was to proceed in three phases: refinement of the model and the data base (8 months); selection and evaluation of a series of policy alternatives (3 months); integration of the model into the city's policy-making process and documentation (1 month). The project was organized into a City Policy Committee to identify alternatives for analysis and to evaluate output from the model, an Academic Policy Committee to review the final model logic and data, a number of market sector panels to provide needed data, and the Research Team, directed by Alexander Ganz.

At first, Schneider had trouble getting approval for the BRA proposal. It was viewed as "his project" and had no other advocates at HUD (other than the Assistant Secretary, who required a new program to receive complete middle-management support without his personal intervention). The proposal was met with a general lack of interest by those who would have to approve a recommendation to award a grant. But external support began to mount. A letter of support for the project was submitted by an official of the Federal Reserve Bank of Boston. An aide from the Office of the Mayor in Boston pressed HUD for action, and an inquiry was even placed with HUD's Congressional Affairs Office by the staff of a Senator from Massachusetts. Gradually, Schneider was able to garner internal support at HUD. At first, Alan Siegel, Schneider's boss at HUD, was skeptical of the value of the project. Siegel requested that some modifications—including the development of an outside "Peer Group" for project review—be made to enhance the transferability of the project's findings to other jurisdictions.[3] After these additions were made, Siegel didn't mind providing his formal approval.

On September 29, 1976—at the very end of the fiscal year—the one year BRA grant was awarded for the amount of $95,000 (plus $35,000 of "in-kind" matching by the city). Schneider felt pleased that he had met the challenge of successfully pushing the project through the bureaucracy at HUD. Given the complexity of this funding process, one would expect that, for Schneider, gaining full approval for the project must have become a kind of "game."

Getting Organized: October 1976 to June 1977

In December, the BRA presented its new project to some local officials from around the country who were meeting in Boston. The

presentation included an introduction to the property-tax situation in Massachusetts and the potentially devastating effect of full valuation. It then went on to explain how the project would study various policy options to alleviate the potentially adverse impacts of full valuation.

The policy options to be explored included a legalized system for classifying property, the provision of increased state aid to ease the property tax burden, and equilibrium value assessing. The analysis of these options would identify the impact of full valuation of property on the tax burdens of households in different parts of the city as well as on investors in multifamily residences and commercial property. The analysis would also explore how full valuation would affect property values in the real estate market; changes in the burdens would somehow become incorporated into the value of the underlying property. Value shifts would depend on assessment practices.

The members of the various committees participating in the project and the procedures through which they would interact were then identified. The presentation stressed the analytic process that would grow out of these activities and even identified the desired outcomes: "hopefully (the City Policy Committee) will also use the analysis in pursuing city tax policy in the political arena"; and "a procedure will be established to allow for periodic review of tax policy options as legislative and administrative changes take place." The presentation concluded with a promise that the methods being developed in the BRA project would be applicable elsewhere.

Shortly after this cogent presentation of the scope and contents of the Boston Tax Project, a major change in emphasis occurred. The original notion of further developing an existing simulation model was dropped. While the two official reasons were stated as the low chances for transferability and the high cost, another major force was at work. Ganz and his leading technical specialist were not very enthusiastic about presiding over the recoding and feeding of an existing model. They felt it would be more valuable to focus directly on tax policy planning and develop a simplified model, using an improved data base to project revaluation impacts and tax burden shifts.[4]

By the end of June, data collection and assembly were well underway. There was a mood of optimism that the project was basically under control. The promotion of James Young from Collector-Treasurer to the newly created position of Deputy Mayor for Fiscal Affairs appeared, to one astute observer, to increase the likelihood "that the project process will become more institutionalized and grow in usefulness as a mechanism for policy review." Project principals hoped that the tax-policy process would encourage a longer-term perspective and a regular review of issues. The report projected the future use of the

project's data base in the public's education regarding alternative tax reforms. It was generally acknowledged, however, that the city's assessing policies were not likely to be influenced by the project and that attempts to institute joint arrangements between the project and the Assessing Department for recording property sales had failed.

Early Accomplishments: July 1977 to December 1977

During the summer of 1977, the project continued to improve the data base and began to estimate the potential impacts of revaluation. Summary descriptions of the data-base management system and the types of data available were prepared. The project was on target. It was quantifying for public scrutiny problems that many knew existed but hadn't before measured: large variations in assessment/sales ratios and associated effective tax rates between and with City wards for the same kinds of property; disproportionately high burdens on older commercial properties compared with those developed since 1960; huge tax burdens on multifamily properties; and large expected shifts of tax burdens from business to residential property under fully equalized assessment.

The value of the newly assembled data systems slowly became apparent as the project team developed analyses of revaluation options. The determination of property value from a capitalization of income approach—rather than from actual sales data—was attempted in response to a request from the Department of Assessment. Doing this was nontrivial, and different approaches to income capitalization were attempted. The data-management system greatly facilitated the rapid calculation of different sets of impacts. Data were displayed in different ways: gross averages, distributions around mean values (histograms), and individual illustrative properties. Meanwhile, the project's data base was supplemented by the completion of two other efforts by the BRA Research Staff, conducted independently of the Tax Project work: an interim report on the office industry in Boston and an evaluation of two programs that provide tax incentives to attract new developments for the City.

In the meantime, beginning in June 1977, Raymond Torto, who had been working as a senior staff advisor to James Young since the prior September, started to turn his attention to the classification of property for setting tax rates—a strategy that had been developing since full valuation of property in Massachusetts became a court-ordered requirement. In August, Torto issued a "draft" report on "Property Revalua-

tion in Massachusetts: A Look at its Consequences," which argued that property classification would lessen the adverse impact of the mandated revaluation in Massachusetts had begun. He presented a draft design of classification should be implemented. It would be critical to demonstrate that revaluation could be implemented without drastic shifts of property taxes among categories of properties. Torto officially alerted Young, in a memo on August 17, 1977, that work on the consequences of revaluation in Massachusetts had begun. He presented a draft design of the classification scheme and "reminded" Young that this issue would require serious attention over the coming year. A summary of the proposed constitutional amendment had to be filed in December 1977. The detailed bill had to be submitted the following March. In November 1978, the proposed amendment would appear on the ballot of the general election. By now, the BRA research team was swept into the fast and furious current of the classification debate.

Torto, as Special Assistant to the Mayor for Tax Policy, subsequently supervised the planning and implementation of a series of analyses to explore the impacts of different property-class definitions. BRA project staff supplied Torto with the necessary analytic support. As 1977 was coming to an end, it was clear that the classification amendment would continue to be a major priority of the Mayor and that the project team would continue to work with Torto. The goal of this work would be to show that a classification system could be constructed which would minimize the shifts in burden of revaluation on home owners and owners of vacant land. Doing this had to be an extended analytic process of "trial and error."

In the Fall of 1977, another episode in the life of the Boston Tax Policy Project was launched. The impetus was the growing volume of tax abatement petitions being filed in the courts under a claim that the assessments were unconstitutionally disproportionate. In the face of these pressures, the city began to fear the possibility of the court assigning a master to carry out full value assessment, rather than the city itself. The city decided to take the initiative and established an interagency city/BRA task force, called the Assessing, Research and Legal Assistance Group (ARLAG), to address a range of problems associated with property-assessment practices. Alex Ganz and key BRA staff became involved with the work of this group, which included the city's top officials in the fields of tax policy, budget, and assessing. ARLAG was to "buy time" by challenging these abatement applications and class-action suits and also to begin the move toward the development of a viable revaluation and revised assessment system and longer-term, statewide tax-reform measures.

In assisting ARLAG, the project team assembled data on the relative cost to the city of different standards of property taxes: lowest class standard, equalized tax-rate standard (citywide average), and equilibrium value standard. This analysis and other data showing the vulnerability of the city's residents to increased tax and economic burdens formed the basis of testimony presented to the Appellate Tax Board by BRA analysts in December 1977.

The BRA team thus got heavily involved in legal activities of the city, providing data and analysis to fight immediate challenges. Tension between these short-term demands and the more strategic orientaion of the original Tax Policy Project was quite apparent. The project was gaining in relevance and visibility, but the cost was a slippage in the timetable for completing the data base.

City decision makers, meanwhile, had signaled a change in the tax-policy emphasis from the municipal scene to that of the state. The futility of a unilateral municipal tax-reform strategy was made painfully clear when most of the major portions of the city's fiscal legislative package of 1977 were defeated by the state legislature. Launching a drive for state financial assistance seemed to be the only viable strategy for property tax relief in Boston. The BRA project staff expanded their model to allow the evaluation of a major piece of this strategy—a broadening of the state sales tax and a corresponding sharing of the additional revenues with cities and towns. A preliminary analysis of the impacts of this proposal was made, but Ganz and the other analysts knew that much more work needed to be done on identifying and evaluating alternative state revenue remedies for the Boston property-tax dilemma.

In the midst of all this action, the first of the scheduled "peer reviews" of the Boston Tax Project was held. The peer reviewers warned HUD of important limitations in the transferability of the Boston project to other urban areas. They concluded that "the approaches and process" being used in Boston could be of great value elsewhere but that specific models (such as techniques for calculating equilibrium property values) would not. The Peer Group also expressed concern about the inadequate assessing practices in Boston. But the group publicly complimented all of the participants in the project—researchers and practitioners—for the high degree of competence, interaction, and enthusiasm in their work to date. Privately, however, some of the reviewers were bored at the meeting. They feared that the project was to be overly academic, but they were personally impressed by Ganz and wished to be of assistance to him, as called for in the project design.

Awaiting Phase II: January 1978 to June 1978

In January 1978, Alexander Ganz produced a comprehensive progress report which mentioned that the project's analytic work might "increasingly shift the focus of the City Policy Committee to longer-term considerations of strategy, policy, and the design of the new generation of tax measures." The report also expressed the project's intent to encourage analysts and decision makers to review the planned state-level analyses in order to promote the evolution of state tax policy. In this way, the project "would encourage support for the specific formulations needed, and marshall constituencies to back reform." Ganz clearly envisioned his project as a vital force in the political process.

As a policy-analysis effort, Phase I had accomplished its primary objective: to create a data base enough in advance to be useful in the fight to create a valid property-classification scheme which would temper the impacts of property tax equalization. Project participants could point with pride to the set of classification-mix alternatives that had guided the preparation of the classification "shelf" bill (which was subsequently approved by the State Legislature and then, in November 1978, by the public in the general election). The disaggregated estimates of the impacts (on Boston's wards and types of residential property) of 100% evaluation, classification, and tax-levy reductions from additional financial assistance from the state were valuable statistics which had not previously existed. The less detailed analyses for other municipalities in the commonwealth were also critical (although they were not part of the original work play submitted to HUD in the unsolicited proposal). The city's Office of Information on Classification would later become a primary beneficiary of these outputs, as the key numbers were taken wholesale for their "educational literature." Other groups supporting the classification amendment, such as the Massachusetts League of Cities and Towns and the Massachusetts Mayors Association, would also be "direct users" of the project's outputs. In a fundamental way, the Boston Tax Policy Project was already a success, even though the shift toward a statewide orientation had left the city of Boston data incomplete, compared to what was specified in the original project design. One notable institutional loss to the project, however, was the Department of Assessing, whose Commissioner participated in early months of the project but became inactive thereafter.

The BRA had an analytic momentum that it did not wish to lose. The team worked well together and had smooth relationships with clients at

the city and state policy levels. It was natural for them to request additional funding from HUD, in the form of a Phase II proposal.

Supplementary funding, which required a new BRA request and HUD approval, had been anticipated in the Fall of 1977. In November, Schneider and his boss at HUD, Katherine Lyall, Deputy Assistant Secretary for Economic Affairs, visited the Boston project. Schneider briefed her before the visit, and in Boston, James Young, Deputy Mayor for Fiscal Affairs, described Boston's tax problems and how the project had been useful to the city. Schneider felt that Lyall was pleased with the project, but he didn't need any action from her or other HUD officials until several months thereafter, when the Phase I funds became depleted and the need for a follow-on grant became real. It turned out that Schneider had to stall the BRA for over eight months, until he felt the time was right to receive a Phase II funding request. During the interim period, the city of Boston provided funds to support the BRA research team.

Schneider couldn't get any signals from HUD officials on the likelihood of approval of a Phase II request. There was no visible opposition to the project, as there had been during the initial funding review, but also no obvious support from HUD management. The Assistant Secretary for Policy Development and Research at HUD, Donna Shalala, seemed distrustful of the research activities that had been originated by her predecessors. Schneider's new boss was also new to HUD and was not very familiar with the project. Schneider felt he had to wait until there was a clear example of "success" from the project. Only then could he move ahead to build HUD's enthusiasm for another round of funding.

The needed impetus came from two reinforcing sources: project products and Proposition 13. Updated histograms produced by the project showed the dispersion of tax-assessment sales ratios for "comparable" city property. Another computer analysis identified the statewide impacts of a property-tax levy limit equal to 2 1/2 of the current market value. Meanwhile, the so-called "Proposition 2 1/2" being debated in Massachusetts was an obvious response to the same kind of political and economic forces that had spawned the infamous Proposition 13 a year earlier in California. The Secretary of HUD was interested in the implications of such fiscal austerity measures. The project's data base was "up and running," and HUD had access to it. When Schneider packaged his recommendations for Phase II funding of the Boston Tax Project, he included a copy of computer output from the

analysis of "Proposition 2 1/2". Shalala approved submission of the Phase II proposal. When Schneider finally submitted the BRA proposal in June 1978 with his recommendation of support, it was officially approved one day later: an additional $100,000 for one more year's work.

The Classification Battle: July 1978 to November 1978

By the end of June 1978, Ray Torto had publicly issued a report which was, for all practical purposes, the definitive attempt to evaluate how property classification would work, within a policy of 100% valuation, to affect various cities and towns in Massachusetts. Despite acknowledged problems with the data, Torto was convinced that all residential property in the city of Boston would be better off, on average, under taxation by classification than under taxation by 100% valuation. What remained to be done was a more refined analysis for the city of Boston. By August, the project team had completed an analysis of the projected impacts of equalization. The results were presented as a comparison between the two major options: classification and 100% valuation.

Public debate on the classification amendment grew heated as the November election neared. Torto knew that the projections produced by the project team were illustrative, not predictive. As questions were raised on the political front, Torto kept turning to the BRA staff with new requests for computer runs. Almost all of the data that were published came from the computer projections, but some numbers were generated by the City Hall people. The city's credibility with the press seemed to strengthen with each presentation of data. The city appeared to understand the numbers; its opposition did not. The press and the public may not have understood the calculation of capitalization effects or equilibrium values, but they were willing to assume that the ranges of likely impacts were reasonable. (Torto deliberately presented ranges, not point estimates, to defuse debates on the accuracy of any single number.)

During the campaign, the business community was offered a chance to prepare a joint bill with government. It turned down this opportunity, deciding instead to let government submit its own bill, which it would fight in the campaign. This proved to be a bad political calculation.

The side with the data was to win. On November 7, Massachusetts voters approved the constitutional amendment which created different classes of property for taxation purposes. The vote in urban areas of the state strongly supported classification with smaller, though decisive, majorities in the suburbs. Torto would later admit in private that the data could probably have been successfully put to use for the other side.

Phase II Activities

As the classification analyses began to be cut back, the project team was able to devote more of its energies to the main focus of Phase II: the revenue requirements of Boston and other municipalities in the Commonwealth. In addition to the potential impacts of classification and equalization, the range of property-tax limit proposals, tax-abatement decisions, and inflationary effects needed to be explored. On the fiscal demand side were issues of municipal expense trends and capital investment needs.

In 1978, a variety of stop-gap property-tax relief proposals were put forward by the governor and different legislators. The Boston Tax Project became involved in the analysis of the relative benefits of these proposals to the city, taking account of 100% valuation and alternative forms of property classification. The debates involved revisions to the school aid formula, the state assumption of county court expenses, and municipal revenue sharing. Staff from the city's Office of Fiscal Services worked closely with legislative leaders and introduced into the debate estimates of the tax impacts of the proposed revisions which drew on the data base prepared by the BRA team. The city applied greater analytic capacity to evaluating the legislative options than did the entire state bureaucracy. The city's proposals were presented as projections by legislative districts across the state. Legislative leaders were able to see that certain features that were advantageous to Boston were also beneficial to their own constituencies. These analyses were felt to influence the ultimate position taken by the legislature during the 1978 session. The joint energies of project staff and members of Young's office were not in vain.

Much of the subsequent analysis conducted by the Boston Tax Policy in late 1978 and in 1979 can be seen as a reaction to the property-tax plan proposed in November 1978 by newly elected governor Edward J. King. The plan, announced just prior to Election Day, featured an increase in

state aid, a tight limit on growth in the state budget, and limiting (or "capping") property-tax levies in Massachusetts cities and towns.

At the end of November 1978, the outside peer review team met in Boston for its first review of Phase II of the project. A new team had been assembled, only one member having remained from the original group. This highly qualified team of reviewers seemed pleased with the quality of the research, and they commented on the relevance of the project to current policy in Boston and Massachusetts. Negative comments on the city's assessment practices, a subject which received a similar response at an earlier peer-review meeting, were even more strongly voiced this time: "Boston's assessment accuracy is the poorest of any major city in the country." The reviewers expressed disappointment in the method of assessment that had been chosen for implementation in the upcoming full-valuation effort. Clearly, these outsiders were also concerned with how well administered this mammoth assessment project would be. Meanwhile, Schneider took the occasion of the Peer Review meeting to express (in an informal discussion with some of the major participants) the concern that since the classification campaign, there seemed to be a risk that "politics was leading the research," rather than the earlier pattern of "research leading politics." The risk, in Schneider's mind, was that the research might lose its external credibility.

A series of analytic reports began to flow from the BRA's Research Department in the Fall of 1978 and the Winter and Spring of 1979.[5] Some of these were clearly outputs of the Boston Tax Project, while others were prepared by Ganz's staff but were not supported by the HUD funds. To many of the government participants in Boston, the significance of a separate, federally funded applied research project seemed to blur into a general impression of the range of simultaneous activities being pursued by Ganz's shop.

In October, Raymond Torto issued a paper on "Estimating the Impact of 100% Valuation with Tax Limits," which was prepared for the Massachusetts Mayors' Association. This paper was based on the project's efforts to assess the impacts of imposing a property-tax levy limit of 2 1/2 of market value along with 100% valuation of property. The sharp rise in residential property taxes in the state's larger communities combined with a corresponding decrease in the tax bills of commercial properties argued strongly for the defeat of the nonbinding proposition—commonly known as "Proposition 2 1/2"—on the November 1978 ballot. This report formally acknowledged HUD's support

of the research, leaving Schneider somewhat concerned. If the supporters of Proposition 2 1/2 had made an issue of HUD's role, it could have been very awkward for Schneider, who, along with other HUD officials, wanted no association with local political battles. Fortunately, the opposition never seemed to notice this attribution.

In February 1979, the project produced an analysis of fiscal patterns and trends for the 351 Massachusetts cities and towns which showed that, after adjusting for inflation, municipal expenditures per capita had remained essentially stable over the past twelve years. This report was presented to a local columnist by James Young and Ray Torto. The columnist, in turn, printed an article in the daily press called "How Kevin's 'White Lies' Killed the Cap," a scathing attack on the validity of the statistics used in the report, and a claim that "the undisguised purpose of this document was to stop the tax cap drive in its tracks." The columnist concluded that the report, which had been prepared "using a HUD research grant . . . is yet another example of why you cannot trust any analysis of this kind, when it comes from the very people (government) who stand to gain the most by it." Several key actors associated with the Boston Tax Project drafted responses to this article and to a subsequent series of articles by the same newspaperman on the subject of fiscal stress in Boston. One response, by James Young, was printed in the paper. For a short time, the Boston Tax Project was swept up in the fast-flowing stream of political infighting. In a mayoral election year, even a careful piece of elementary statistics can receive broadside attacks in the give and take of local politics. This publicity, however, seemed not to have a notable impact on the perceived professional integrity of the staff working on the Boston Tax Project. Nor did the publicity escalate to the point where HUD, as sponsor of the research, was affected.

Finally, with regard to property-tax equalization in Boston, progress was made but without much involvement by the Boston Tax Policy In January 1979, the city's Office of Property Equalization submitted its plan for implementing the court-ordered revaluation, but the plan was not approved by the State Department of Revenue until June. Earlier hopes that this office would work with the Boston Tax Project to produce an acceptable set of sales data for 1977-1979 were abandoned. The BRA staff was unsuccessful in providing assistance to tax *operations* of the City, although they were very useful on tax *policy* matters. Implementing local property-tax changes in Boston promised to be a more pressing challenge than studying it.

Reflections on Outcomes of the Project

If Weinberg had a "hidden agenda" in promoting the initial Boston Tax Project, it was to begin a process through which city officials would meet regularly to deal with fiscal issues. The implicit hope was that a sort of Fiscal Policy Cabinet would emerge, even on an informal basis, and that this group would adopt a longer-term perspective than currently existed on issues of this type. By July 1978, one central observer noted: "While there seems to be steady improvement in the quality of fiscal policy decisions, there has been no significant change in how such decisions are made, and that current executive style had not encouraged a comprehensive, long-range, orderly approach to fiscal planning and decision making." A hope was then expressed that closer ties between fiscal policy and other related city planning, policy, and program areas would develop. By June 1979, however, as Phase II was coming to a close, the city was no closer to having a mechanism for fiscal policy planning.[6]

A more direct expectation from the Boston Tax Project was "the development of an ongoing analytical capacity in tax policy at City Hall, buttressed by an adequate data base and professional ability to dissect tax options generated by opportunities and events." By July 1978, it was observed that accomplishments along these lines had extended "far beyond original hopes and expectations."[7] Nevertheless, as the project team was drawn deeper and deeper into tax-strategy development and state-level revenue issues, there was little incentive to complete the city data base.[8] As of July 1979, key elements of the data base were still missing.

Who ends up caring about an effort like the Boston Tax Project? The groups who were direct consumers of the classification amendment projections are among the most obvious beneficiaries of this federally sponsored project: They embody the most commonly expressed notion of research utilization—using analytic findings to promote a particular decision.[9] The legitimacy of such a project is also derived more indirectly—from the endorsement or other symbolic association it receives from "important people." And yet it is important to realize that these sources of legitimacy do not necessarily represent a significant personal involvement or approval. James Young was one of the early sponsors of the BRA proposal, but he did not personally work at getting it approved or initiated. Though Young's initial sponsorship was more symbolic than anything else, he turned out to be a major user of the

outputs of the project. At HUD, Assistant Secretary Charles Orlebeke, in contrast, had nothing to do with the project and heard nothing about it after he approved it for funding (although, it should be noted, he left the federal government not long afterwards). And Alan Siegel, who had insisted on certain modifications before he would give his approval (which was needed prior to Orlebeke's), had little subsequent exposure to the project.[10] Michael Schneider, who considered himself to be a participant rather than an objective observer, acknowledged that he felt an unusual degree of personal involvement with this project compared with others for which he had been the Federal Project Officer. One discovers then, perhaps not surprisingly, that the project "matters" most to those who participate in it most intensively—either as director of staff or as its major direct beneficiaries.

In the HUD contract, several groups were designated to advise the BRA researchers or to review their work. Market Sector Panels ("a series of five or more") were to examine the models dealing wth their own sectors (e.g., residential, commercial) and the adequacy of the socioeconomic data used. The City Policy Committee was to select policy alternatives for analysis and to evaluate the output of the model. The Academic Policy Committee was to review the results of the various market sector panels and to examine the final model logic and data. The Peer Review Team, established at the suggestion of HUD, consisted initially of several members of the Urban Consortium who would come from other parts of the country to review the project every six months or so. In practice, the functions of these groups seemed quite different from the original plans and expectations.

For a variety of reasons—mainly changes in the scope of the model and delays in constructing specialized data bases—the Market Sector Panels were never established. The City Policy Committee and Academic Policy Committee existed but were not active in the ways originally envisioned. These groups met infrequently and with little vigor. And yet there was no shortage of input from the individual members of these two committees. Most of them were active participants, not just observers, in the analytical or policy debates. Ray Torto, for example, in effect ran the technical side of the classification campaign. And professors Holland and Oldman, two of the "academic advisors," were hired by the city in 1978 to conduct a study on new tax-revenue needs for Boston and the other cities and towns of Massachusetts. Probably the greatest disappointment, compared to the original Committee plans, was the minimal participation by the

Department of Assessment in the ongoing work of the project. With that one exception, working relationships among the participants were reported to be particularly strong, even though formal group identities did not seem to matter.

The Peer Review Team met as originally planned in several formal two-day sessions. Reactions to these meetings by hosts from Boston were varied and somewhat novel. One city official found the most valuable part of these meetings to be the presentations that other Boston officials made to the visiting peer reviewers; he felt the meeting offered a unique opportunity for him to listen to his own colleagues explain—in more detail than he had heard before—some of the more pressing fiscal problems and challenges facing Boston. Another Boston official enjoyed the unique interaction with practitioners from other cities and valued the opportunity to hear some of their experiences. More than one member of the BRA team suggested that the most valuable aspect of the Peer Review meetings was to serve as formal deadlines which encouraged the completion of certain analytic efforts in time to be presented.

The planned committee structure of the Boston Tax Project, in conclusion, was very different from the subsequent experience. The structure was maintained wherever this was practical and was dropped when it was not. In general, however, formal roles and rigid performance schedules appear to be impractical, highly artificial organizing mechanisms for this kind of adaptive, multifaceted urban research project. At the initiation of the project, a formal committee structure undoubtedly lent credibility to the BRA proposal. Afterwards, more functional roles and meanings took over. The various participants benefited in different ways from the formal sessions that were held. And for some, the committees were of little significance compared to the social ties that were developed. One key actor likened the project-as-organization to a softball team: "When there was a game to be played, you could call up and everyone on the team would make the time to come together and play."

What were the expected outcomes of the Boston Tax Project as it moved into its final few months of HUD support? It should not be surprising from what has already been said that projections of outcomes generally depended on the role played by the person interviewed. "Success" is therefore in the eyes of the beholder.

Schneider at HUD, for example, wanted to see the computer software packages developed at the BRA transferred to other municipalities. He also expected the set of project reports to improve our

general understanding of property-tax problems and related fiscal and economic interactions.[11]

To the city of Boston, in contrast with HUD, a measure of the project's success is the extent to which the analytic capability is institutionalized. There was general agreement that Mayor Kevin White is committed to the continuation of support in this area. The BRA Research Department will most likely generate new Federal grant support in the future, as it did before the HUD project occurred. Research staff may turn over, but the data base and software will remain and there is reason to believe that qualified new staff will continue to provide analysis as needed. Serious research on complex policy issues will tend to proceed in cycles over extended periods of time, as did the original wave of Boston property-tax work throughout the 1970s.

Analysis of the Case History

The Boston Tax Policy Project was conceived and executed with an overriding concern for bringing knowledge to action in the field of property taxation and related fiscal policy. The project represented a voluntary collaboration by a wide range of actors coming from several distinct institutional orientations. It was characterized by a temporary, loosely structured association of these actors, quite distinct from each of their primary ongoing organizational affiliations and objectives: university academics, federal government R&D managers, staff specialists, fiscal managers in local government, political operatives, and public officials. Everyone understood that this was not intended to be a carefully controlled piece of academic research. The project's main criterion for evaluation was to be the usefulness of its outputs and the process through which they were developed. It was also clear that the substantive area had been selected because of its high degree of political interest. No one could have doubted that this project was to become intensely involved with short-term debates among conflicting interest groups and that the project would become aligned with the interests of the city of Boston, in particular its mayor. It was clear that this situation was no exception to Larsen's (1980) observation that "knowledge utilization is a complex process involving political, organizational and attitudinal components in addition to the specific information or knowledge."

The value of this case history is the opportunity it provides to understand in more depth the characteristics of this kind of utilization process. A central image which emerges from this study is that of "analytic capacity" and its significance for the conduct of applied urban research. Other salient characteristics of the utilization process relate to organizational structure, roles, and environmental factors. Each of these themes is briefly discussed below.

The Value of Analytic Capacity

Financial support is an obvious requirement for the creation and nurturing of an analytic capacity in municipal government. For the Boston Tax Project this was no exception: Without the HUD grant, it was highly unlikely that the BRA Research Department or any other staff group in the city or state government would have duplicated the full range of outputs related to property-tax structure and related policies which were actually produced over the period 1977-1979. However, on the local scene, HUD does not generally get credit for funding a self-contained urban research project. Instead, the BRA gets credit for having the capacity to do the work. The implications of this distinction are worth exploring. The Boston Tax Project promoted the further development of an existing internal analytic capacity, and therein lay its power. An ongoing analytic capacity provides the longevity necessary to tackle tough long-term policy research needs. It also provides the flexibility to shift agenda to meet short-term requirements. Neither of these types of contributions is likely to be made by a limited-duration, highly focused policy research project.

"Analytic capacity" may seem vague and risky compared to the popular concrete image of a "project." That is certainly the typical view of a federal sponsor of R&D: Research-support decisions are justified based on a rigorous peer review of the technical merits of an incoming proposal and a subsequent report of the product of the research project. Weinberg knew this when he put together the initial version of the proposal submitted by the BRA to HUD. Schneider at HUD was able to work with this kind of results-oriented project. He could examine the project outputs, see how they fit the gaps in his existing portfolio of sponsored research in the field of public finance, and ask others (such as a program manager at the National Science Foundation) to evaluate the proposed "research project." HUD officials could also relate to the

proposal in terms of the transferability of the projects to other municipalities. Weinberg's emphasis on participation in the project by academics and policy makers helped to provide the sense that the product would be neither technically shoddy nor overly academic. Nowhere in the proposal was it stated that this project and some of its participants had a long history of trying to conduct analysis of the kind to be attempted. Nor was it suggested that there would likely be the need to do more analysis of the identified issues even after the requested funds had been exhausted. In building up the image of a self-contained project rather than a sustained analytic capacity, Weinberg was simply playing the game of grantsmanship.

Particularly so since he had two audiences in mind, only one of which was HUD. Obviously, it was important to get support from HUD. The money would help to buy the necessary analysis. Perhaps even more important to the entrepreneurial Weinberg, however, was the significance of the HUD support to legitimize the analytic effort. Such legitimization, he felt, was essential to the subsequent coalescence of a policy-planning process. The proposed project was designed to be the catalyst to get city policy makers to meet regularly to discuss policy options in the field of taxation and occasionally examine new data on the subject. These meetings and their indirect impacts might alone justify the effort in creating the project even if the initial data and analysis had little direct impact. Through time, the data and analysis would get better, but the critical step was to begin to institutionalize the process and to expand the analytic capacity.

What does "analytic capacity" mean to those in city government? The real value of a group of analysts to a municipal official is their ability to focus on an important question at the time when that question is of great public interest. James Young, Boston's Deputy Mayor for Fiscal Affairs, viewed the BRA research group as an example of a general staff capacity that city government needs but rarely has. Whether they are technically trained or not, support staff must be "loose," as Young phrased it, to be put to work at the right time. Young felt that the BRA's ability to provide new data and analyses quickly during the classification battle enhanced the city's credibility with the press. Young and others also felt that in an urban setting, the humility of the researcher becomes as important as his availability and skills. Alex Ganz's gracious style was cited by several key participants as a major feature of the

success of the project. Policy makers do not want to be told what to do by pompous or arrogant experts.

To analysts and their managers, however, operational flexibility has its costs. The most obvious cost is that research plans and schedules tend to be shifted in response to the latest requirements. Addressing short-term issues can appear "distracting" to technical staff, while it offers the researchers an opportunity to become "policy relevant." In that extreme, short-term responsiveness can lead to a halt in the production of meaningful new knowledge.

In this kind of politicized setting, "success" must be judged in terms of the role of research. Often this becomes a matter of helping to generate feasible solutions to policy dilemmas. Instead of developing elegant techniques to optimize the public welfare, applied urban research efforts (like the Boston Tax Project) often follow well-known approaches to develop a policy alternative which competing interests can accept. Research thus becomes a re-search of options to find a reasonable compromise satisfying many constraints.

This notion of research leads to a complex and socially determined concept of utilization: To influence action, knowledge must also influence thinking. When action—such as a change in property tax rates or categories—is "overdue," then new knowledge is valuable if it indicates a package of options which are "reasonable" to follow. Reason here is an inextricable blend of cost-benefit, equity, and political calculations. A single, well-timed research effort by a reputable group can simultaneously shift the conceptual basis for decision making as well as supplement the information base upon which that decision is made. Furthermore, some decision makers will be more affected by the conceptual significance of such research, while others, who are also involved in the same political arena, will be struck by specific quantitative findings.[12]

The Need for Multiple Leaders

Of all the familiar problems associated with potent action in the public sector, inadequate managerial leadership is likely to be on anyone's list. In the delivery of a public service, there is often *one* managerial position which needs to be filled by the right kind of person if the program is to have a chance for success. In contrast, the successful

conduct of applied urban research requires that there be *several* different leaders adopting distinct but essential roles. A list of these key roles emerges from a review of participation in the Boston Tax Project:

The Father (or Mother): Someone has to take primary responsibility for conceiving the project and nurturing it by providing nutrition, a hospitable environment, and a healthy start in life. This same person would ideally stay around to provide gentle support during the project's childhood and adolescence.

The Benefactor: Someone close to the means of financial support must take an interest in the project at the beginning and remain committed to its execution. The Benefactor must also be skilled in producing the required resources, as needed, from an organization that is faced with competing demands for funds.

The Director: Someone must take day-to-day responsibility for technical direction of the project. This person must have the appropriate professional background, managerial skills, and personal credibility to represent the project in the minds of those who might use its outputs.

The Technicians: Urban research requires particular technical skills. A person who provides these skills must be well trained and dedicated to doing careful, high-quality work, whether it be data collection, model development, or computer programming. He must also be able to work well in the turbulent environment characterized by urban policy. The literature normally calls this person the "producer" of knowledge.

The Broker: Someone must receive the quantitative output produced by the technicians and shape it for use in the political arena. Sometimes the Broker will have to formulate in technical terms what the products ought to be. The Broker must have the respect of both the technicians with whom he will work closely on a day-to-day basis and the policymaker with whom he will have occasional intensive interactions. Respect from the former demands a minimum level of analytic skill; respect from the latter demands substantial political awareness. The Broker, therefore, provides an organizational mechanism for knowledge utilization: Larsen (1980) has observed that "knowledge may not be used if implemented in its original form but may work very well if changed somewhat to meet the circumstances of the user."

The Official: The source of all power in urban policy rests with the role of the public official. For a piece of urban research to have ultimate impact, some official will have to appear to be supportive at key times in the life of the project. The Official's presence, even if mainly symbolic,

> will be essential at the outset in obtaining project funding. And in the long run, his involvement will bring the project serious attention from other officials, the public, and the media. The literature usually assumes that this person is the primary "user" of knowledge, but this is not necessarily so. Even if the Official is a user, he may also fulfill these other supportive functions.

In practice, one person may serve more than one of these functions (although in the Boston Tax Project, each was filled by a different individual). Sometimes more than one person will share a single role. Sometimes there will be leaders who arise to serve functions in addition to those identified here. The important generalization, however, is that a variety of leadership functions must be well executed if an applied urban research project is to be successful. Perhaps this is a clue as to why there are so few successes.[13]

The Mystical Ingredient: Trust

Whenever people work together they need to trust one another. Any single action within an organized setting can be understood to be in response to prior actions, in concert with simultaneous actions, or in anticipation of subsequent actions, all being performed by a range of actors in the same social system. In any project, participants realize the cooperative nature of group action and that, through time, one depends on others to do their jobs well. This is such a basic characteristic of organizational behavior that we tend to take it for granted, particularly in fairly stable settings where the key participants have performed their roles for a long time and have worked together toward a common goal. There, the need for trust is often implied but rarely stated.

In investigating a group effort such as the Boston Tax Project, one cannot help being struck by the dramatic and explicit importance placed on the concept of trust. In discussions with all of the principal actors in this project, I asked questions such as: Why did you do that? Very often the response was direct but mystical: I trusted him! The notion of trust was introduced by project participants in almost every relationship possible: among the federal sponsors and key members of the project, among the project director and major city officials, among the media and the analysts, and among the project participants and the project monitor. A list of examples indicates how prevalent this basic psycho-

logical factor may become in the course of a federally sponsored urban-research project.

Weinberg, referred to by one key actor as "the father of the project," began the enterprise in a spirit of trust. The whole project, in his view, was essentially "placing a bet" on the individuals who were to be involved as researchers, academic advisors, and city policy-makers. Inherently, a "bet" is a gamble, but one takes the risk because the underlying trust is there. Decisions to fund projects like these also require considerable trust among the bureaucrats in the funding agency. When the intial BRA proposal was being worked through the HUD hierarchy, there was no particular interest in supporting the project. Orlebeke and Siegel trusted Schneider not to be backing a highly volatile or overly risky effort. And almost two years later, when Schneider marshalled evidence in support of the Phase II proposal, Shalala and Lyall—key members of the then current HUD hierarchy—had to trust Schneider's judgment in much the same way. HUD's long-delayed approval of Phase II funding illustrated another kind of trust: that which must exist between a Federal Program Manager (PM) and his grantee. The grantee must trust the PM to judge when and how to move the funding request through the federal bureaucracy. Sometimes it is in the interest of the grantee to put pressure on the PM; at other times it is best to leave the PM to control the pace. The Boston people trusted Schneider for eight months to select the most propitious time to seek approval for the Phase II funding, even though Phase I had expired. At a more ongoing level, a certain kind of trust existed between Schneider and the administrative assistants of Ganz and Weinberg; both of these women played active roles in ensuring that their bosses followed up on important communications between Washington and Boston.

During the course of the project, other elements of trust could be identified. Alex Ganz, as project director, had to trust his staff to do careful, thorough, and timely work. The high visibility which his Research Department received at both the city and state levels could work in either of two directions: greatly enhance a professional reputation that had been slowly developing through the years or call into question the practical value of maintaining an analytic capacity which couldn't be trusted at the time of most critical need. Ganz and the other principals also had to trust the project monitor, Joseph Slavet, to provide a reasonable portrait of the project and its accomplishments in the series of reports which he prepared throughout all phases of the project. Slavet was undoubtedly selected for this position because of his

long history of involvement on city financial and development questions; as one observer put it, "Slavet is a trusted individual . . . more than just a monitor." Similarly, the project's Academic Advisory Committee, to paraphrase one of its members, was a working group, a place to come together to discuss issues with knowledgeable people who could be trusted.

In the production and use of data, there is also a chain of trust, each link of which is important if analytic products are to affect public policy. City policy intermediaries (Ray Torto) have to trust the technical staff, since they cannot validate the accuracy of all of the computer output when it is delivered to them. Policy makers (James Young), in turn, must trust their intermediaries to interpret the analysis and shape the numbers into a strong political argument; a false step at this stage could leave the Administration very vulnerable. And finally, for the government's position to reach the public, members of the media must listen and then judge whether to trust the quality of the underlying quantitative analysis enough to quote from it in developing their own editorial positions. In contrast, when data and analysis can be threatening to one's own credibility, one might expect—as in the case of the Department of Assessing—some distrust and lack of collaboration.

There is a common denominator in these illustrations of the importance of "trust." It derives from the unique types of interactions which occur in applied urban research projects. The importance of multiple leaders, described above, implies an unusual fragmentation of responsibility among individuals who work with different organizational groups to accomplish different ends. There is no single authority to which all are ultimately responsible. There is no well-articulated division of responsibility to which all participants have grown accustomed through the years. In short, the looseness of the ties among the key actors virtually forces them to trust each other more than usual.[14] This need is accentuated by the function of applied urban research: to bring knowledge to bear on controversial policy issues.

The role of the expert in society is not a new phenomenon; whatever the time or place or substantive area of expertise, laymen and public officials have had to trust the skills of those who profess to have esoteric knowledge. And now, as the knowledge industries and professions have become more predominant in our society, we can sense the reverse effect: that experts must trust their clients not to abuse knowledge which has been produced with such care. Add to these two considerations—the temporary, loosely organized amalgam of actors in these projects and

the nature of knowledge production, dissemination, and use—one more factor: the chaotic, unpredictable nature of the social, economic, and political environment within which urban policy must be debated and formulated. These three dimensions of the Boston Tax Project explain the many needs for trust that were identified. One would expect this to be an important dimension of any other similar kind of project.[15]

The Significance of External Events

External events often determine the course of government. At minimum, they determine the focus and duration of attention of those who operate at the managerial and policy level in government. Adding to these familiar observations just one more—that analytic staff groups in government are usually very vulnerable to resource availability and the interests of line decision makers—one should not be surprised to learn that the Boston Tax Project could not fully control its own destiny in accordance with any preestablished work plan. Throughout the life of the project, events occurred which made great differences to the analytic process and products. A nonexhaustive list follows:

> HUD agreed to fund the project more than six months after the proposal had officially been submitted. During that interval, other program developments at HUD may have improved the mood of key officials to act favorably on the BRA proposal, which at first had not been greeted with strong enthusiasm above the level of Schneider and below the Assistant Secretary.
>
> Originally, Alex Ganz was to be project director in name only. He became a full-time managing director only after two other events occurred. The original idea was to have a full-time project coordinator who would work out of the mayor's Office. An excellent candidate who was already an assistant to the mayor and had prior experience at HUD was lost when he left city government during the period when HUD's support for the project was still being sought. Subsequently, the BRA Board refused to approve a request to hire a more junior project coordinator from outside the agency. The plan and budget called for hiring a full-time person to manage the technical effort. When the BRA Board refused to approve the recommended candidate for this new temporary position, it became clear that Ganz would have to become actively involved in the project. Ganz enthusiastically took charge, supported by HUD funds that were to be used for the coordinator and the aborted consultant contract. There is no doubt that Ganz's particularly appropriate professional and personal

characteristics were major factors affecting the outputs produced and their reception by city and state officials. Many key actors commented on the care with which Ganz does his work and on his unusual warmth, consideration and politeness. It is hard to predict the many ways in which this case study might have been different if Ganz had been less involved.

When the BRA submitted its initial proposal to HUD, Raymond Torto was Chairman of the Department of Economics at the University of Massachusetts, Boston. Although Torto had some prior political experience in Massachusetts (working on the graduated income-tax amendment to the State Constitution), he was primarily an academic at that time. The fact that Torto went to work for James Young at the city in September 1976 and started to turn his attention to the Classification Amendment in June 1977 could not have been fully anticipated. It turned out, as described in the case history, that Torto was the key link from the BRA analysts to the Mayor's campaign in favor of classification. The usefulness of the BRA analytic capacity for this application could have been severely diminished without the somewhat seasoned Torto, analytically competent himself, as an active inside participant. Torto was the primary direct consumer of the quantitative projections, and he knew the kinds of products that would be useful to request. Furthermore, Torto ended up informally becoming project coordinator from the mayor's office, thus playing a role which seemed foregone when the project's original organization took shape.

Throughout the period of time when the Boston Tax Project was being launched, and well into the Phase I period, many of the project's participants believed that the basic long-term solution to the excessive burden of property taxes on city residents and businesses was to be found in tying the city's revenue structure to the state's broad-based tax system. The Tax Project was, however, geared to the analysis of city impacts of property tax options. It was only after the city failed to push municipal remedies to its 1977 fiscal package through the State Legislature that political energies were aimed at broad state remedies to Boston's fiscal problems. The 1978 legislative session, followed by the new Governor's active role in tax rollback proposals in 1979, provided a steady market for analytic work at this level throughout Phase II of the Project.

After the State of California passed its Proposition 13 in June 1978, it became clear that fiscal austerity measures would likely emerge in other states. HUD was particularly sensitive to this emerging national issue, when the Boston Tax Policy Project came due for re-funding. The Proposition 13 phenomenon may have had more to do with the timing of HUD approval than any single attribute of the project itself. It certainly was an important catalyst in generating more interest by HUD in the Boston Project.

These several examples show how the funding, direction, political access, and policy focus all depended on events beyond the control of any one manager or planner of the Boston Tax Project. The ability of key actors to take advantage of opportunities that arise from such external events will largely determine the viability of an applied urban research effort. Accordingly, it is a mistake always to attribute the lack of utilization of research to a specific technical shortcoming of either the research product or of the process through which it was developed (Larsen, 1980; Rich, 1979; Rosenthal, 1980).

Conclusion

The Boston Tax Project is unusual in the world of federally funded urban research.[16] It serves to bring together entrepreneurs, technicians, politicians, and administrators around a major public policy issue: how to respond to growing inequities in the property tax. Its examination yields lessons on the nature of such activities: how to learn more about them and ultimately how to design them. In an exploratory study such as this, it should not be surprising that conclusions are the beginnings of insight rather than the final words.

An applied urban research project of the type studied here has a very elusive identity. This is due more to its interorganizational structure than to its technical complexity. It is no doubt more complex, from a technical and scheduling viewpoint, for General Motors to design, produce, market, and distribute a new model of automobile than for Boston to conduct a tax-policy project. And yet it would probably be more straightforward to understand what happened in the case of the former than in the latter. The reason, I believe, is that the Boston Tax Project represented a temporary organization, a loose amalgam of actors drawn from different organizations and backgrounds. "The Project" turns out to be a series of simultaneous but different projects, depending on whose perspective is adopted. The manifest function of the project—to conduct the highest quality, relevant analysis to help the city of Boston, and to provide insights to other urban areas—is perhaps the most amorphous perspective of all. No one I interviewed was able to address the project from this synthetic point of view. Each actor had much more limited and understandable images of what the project was trying to do. Actors cooperated in this project not because they all shared a common vision of the outcome of the mission (e.g., sell x

million cars next year, or get y percent of the small car market) but because their different images were compatible enough to encourage them to work together. Instead of trying to minimize the variety of ends to be achieved via a project of this type, one might therefore think of maximizing them, for they provide the "glue" which substitutes for the lack of a well-defined set of organizational boundaries and time-worn role sets.

As described above, the case study of the Boston Tax Project suggests certain perspectives for those actors who wish to direct federal support to building analytic capacity in local government. A case history which probes beyond the most simple descriptive statistics—e.g., How much financial support was provided to which recipients by which sponsors over what period of time for the production of how much data and how many pages of technical reports?—quickly becomes subjective. The case writer selects the questions to ask, screens the data which are collected, decides when to stop seeking more data, and imposes on overall interpretation on the many bits of "important" information. The subjectivity of this kind of case study, however, is its strength. Guided initially by several generic questions, the research process led to a socially determined reconstruction of what happened in the Boston Tax Project. Despite attempts to create a single clear history, the case contains rich ambiguities. Ambiguity, in turn, leads to contingent "lessons," ones which are sensitive to the multiple realities of any significant social intervention. In seeking federal support for strengthening their own analytic capacity, local officials must appreciate what the federal interests are likely to be and what kinds of "strings" come along with the requested resources. Conversely, federal sponsors must take care to form reasonable expectations for the likely process and outcome of the work being performed with their support. Researchers, in turn, must understand how their technical contributions are the means to practitioners' ends: The complications, uncertainties, and distortions that they try so hard to control in their analytic work will reappear and perhaps dominate the political debates in which their contribution will be "used." Finally, and perhaps most important, the value of an applied research capacity in local government is a tremendously complex phenomenon. Utilization and value are difficult subjects to study in this arena. Nevertheless, careful examination of what Rich (1979) calls "bureaucratization of the knowledge inquiry system—the production, processing, and use of information" may yield new insights. Furthermore, one can imagine using case materials of this

type to begin to construct meaningful situational typologies for comparative study of these phenomena (Larsen, 1980).

One of the focal questions of this case study was: In what ways did the Boston Tax Project "make a difference"? In retrospect, it is clear that this question cannot be answered unambiguously and comprehensively. Aside from time constraints, which always limit the depth to which any one potential impact could be traced, one must acknowledge that the impact of urban research on political action is not a very transparent process. Research findings may alter perceptions of a problem and the relative attractiveness of alternative solutions, but many other factors will also exert an impact on actual choices. And all of these different impacts will be felt simultaneously.

Perhaps the best place to begin, as in the case study of the Boston Tax Project, is to attempt to define meaningful indicators of impact, with a full recognition that these measures may defy quantification and will undoubtedly conflict to some extent with each other. One can conclude with only one generalization: If it is easy to identify unambiguously the impact of a piece of urban policy research, then it is likely that such research had very little impact at all.

Notes

1. No single case history can provide a conclusive and truly comprehensive analysis of a general social phenomenon. This study does not pretend to be an exception. It was developed and documented in a deliberate fashion to present ideas for current policy consideration, while also serving as a potential basis for further research.

2. The range of empirical questions of interest in this study forced an examination of both the process through which the project was developed and executed and the products which emerged from it. Many distinct episodes occurred in the short life of the project. A wide range of participants was involved in different ways and for different reasons. Attempting to capture the richness of these activities and their meanings in a study of very limited scale was indeed a challenge. Over twenty people were interviewed, some for only fifteen minutes on one occasion, others several times for a total of three hours or more. The documents reviewed numbered close to one hundred and included major technical reports, project summaries, memos, letters and newspaper articles. The original case study was considerably longer than the abridged version presented here.

3. The "Peer Group" initially consisted of several members of the Urban Consortium's Personnel, Finance, and Management Task Force. These individuals represented large cities and counties with an interest in property tax issues. Though the composition of this group changed during the course of the project, meetings were held periodically in Boston to review the progress and findings of the project and to promote its

transferability to other parts of the country. Siegel's other modification was to have the project hire a "Project Monitor" to document the major events in the life of the project.

4. The shift away from the original model was jointly decided in informal discussions among Ganz, Weinberg, and Schneider. A subsequent letter from Schneider to Ganz formally instigated the change in technical approach.

5. These studies included: an evaluation of the "Taxbreaker" bill—a proposal for a one-year property-tax relief combined with alternative revenues from imposing a state excise tax on selected businesses and commercial banks; an evaluation of the Massachusetts Taxpayer's Foundation proposal to increase the state sales tax, share state tax growth with municipalities, and roll back the property tax, while instituting certain controls on local spending; an assessment of the implications of the Governor's local property-tax and spending proposal, which, in amended form following legislative compromise, was enacted in May 1979; an assessment of the impact on Boston and on all other cities and towns in the state of the lowest class ratio standard (rather than an average class remedy) which the Tregor decision requires be applied to disproportionate assessment cases.

6. The Assessing Department continued to be independent of other fiscal activities under James Young, the Deputy Mayor for Fiscal Affairs. The new Office of Property Equalization was yet another independent organizational entity. Although Young's Office continued to receive a separate appropriation by the Boston City Council, there continued to be no legally designated fiscal officer for the City with the formal authority to "run the show".

7. One might reasonably ask whether the BRA is the best organizational location for such analytic expertise. In the absence of a more institutionalized base for tax policy and related fiscal matters, the BRA will, however, probably continue to serve this function.

8. The incomplete data base was attributed largely to ineffective coordination between the BRA staff and the Office of Property Equalization. The assembly recent-market-value data did not take place as intended. Although it is unclear how much of the missing data will be assembled in future years, there seemed to be a high likelihood that the BRA-prepared data base of this type would continue to be used as long as it remained reasonably up to date.

9. This kind of use of research findings by interested parties is common. Weiss (1977b: 14-15) calls it "political ammunition."

10. Siegel, who was no longer responsible for the Public Finance Research Program (after a HUD reorganization in November 1978), kept in touch from a distance, through conversations with the project's outside peer reviewers.

11. Schneider saw the Boston experience as an instructive "worst case" scenario for other parts of the country which also face the issue of full assessment and property-tax equalization. On the analytic front, Schneider pointed to two current HUD-supported projects which were "spinoffs" from the BRA project, plus a Ph.D. dissertation and another study.

12. This view of research utilization seems to defy an unambiguous label of either "instrumental" or "conceptual," the dichotomy offered by Caplan (1975) and Rich (1975). It is also less diffuse than the broad, long-term function of applied research which Weiss (1977a) calls "enlightenment."

13. This kind of situation is structurally more complex than the research utilization settings normally reported in the literature. Although there are "two communities" present here (analysts and politicians), there are also more key participants with related

interactions than the "social scientist" versus "policy maker" dichotomy examined by Caplan (1979) and others.

14. Future research could be directed at the identification of such factors and the assessment of their relative significance for knowledge production and either utilization or "non-utilization" (Larsen, 1980).

15. Here also future empirical studies might operationalize these kinds of variables and attempt to assess their significance in the knowledge production and utilization process.

16. The project situation is more complex, for example, than the "normal" federally supported social research construct discussed by Weiss (1978: 36-37).

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4. "Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts," by Raymond Torto, Prepared for the Massachusetts Mayors' Association, June 14, 1978.

Estimating the Impact of 100% Valuation and Taxation by Classification in Massachusetts: Part I

prepared for

Massachusetts Mayors' Association

by Raymond G. Torto Ph.D.

June 14, 1978

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Preface

This November the voters of Massachusetts will face a most important question -- should they change the constitution to allow taxation by classification? Their answer will have dramatic consequences for the tax bills of residential property. Without taxation by classification, taxation by 100% valuation of all property will become reality in Massachusetts with its all too obvious consequences -- a shift of $265m in taxes presently being paid by businesses onto residential property owners.

This report, the first of a series, spells out, as best as possible given the lack of sufficient data, the effects of 100% valuation and the implications of taxation by classification, vis-a-vis residential property. There is one unmistakable conclusion from the analysis: Residential taxpayers are much better off under classification than under 100% valuation. Taxation by classification will save the homeowner or renter from paying a tax bill which will be about 17% higher, on average, due to 100% valuation.

It is anticipated that there will be much discussion concerning the effects of both 100% valuation and classification based on data analysis. The underlying data bases that all researchers will most likely employ is the biennial survey of equalized values from the Department of Corporations and Taxation. This is the only data base available, but it is not adequate to predict precisely what will happen under either 100% valuation or under classification. The data can only be used to illustrate and not to predict. Furthermore, the data is not consistent with the proposed classification model and is, at a minimum, already one year old.

Nevertheless, a debate on numbers will probably follow the release of this report. In order to be candid about our use of the data and the methodology we have used, we have added three appendices to our report which present our assumptions and methodology, as well as a partial analysis of the data and our conclusions concerning the data. It is crucially important, for the purposes of an honest debate on the numbers, that all researchers make a detailed disclosure of their analytic assumptions and methodology. We have done so. We challenge all others to seek the same level of scholarship and disclosure. Disraeli once said: "There are 3 types of liars: liars, damn liars, and statistics".

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Special Assistant to the Mayor for Tax Policy
City of Boston

June 7, 1978

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Without the help and dedication of all these people, this report would have never been produced.

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I. Introduction

The cities and towns in Massachusetts are under a 1974 Supreme Court order to revalue their real and personal property so that assessed values are equal to the full and fair cash value of these properties. This decision, known as the Sudbury case, resulted from a class action suit brought by the "residents, taxpayers and officials" of Sudbury. At issue was Sudbury's contention that it was being penalized by reduced state aid resulting from adherence to the legal, full-value assessing standard while many other communities were not meeting this standard. Sudbury's complaint was valid. The court's assumption that justice for Sudbury required state-wide enforcement of the full-value assessment law is, however, debatable. Ironically, since 1974 the equalized valuations of the State Tax Commission have effectively resolved the state aid issue in Sudbury's favor without the enforcement of full-value assessment. Nevertheless, the Court's mandate exists and the cities and towns are in various stages of the process of revaluation.

The revaluation mandated by the Court will change the distribution of the property tax burden in Massachusetts. For many reasons, the current assessments in most cities and towns are not only factional, but disproportionate in favor of the residential class. The assessments on the commercial and industrial sectors are at a higher ratio of assessed value to market value than is residential property. The implication of the current distribution of assessments is that a good share of the current property tax burden on commercial and industrial property will shift to the residential sector following revaluation. This paper looks at these expected shifts, under 100% valuation and under a proposed alternative, taxation by classification. It is the first part of a series of studies on this subject.

The paper is divided into five sections. Following the introduction, a description of the summary analytic categories is presented. These categories are then used to analyze the effects of 100% valuation in Massachusetts in Section III and the effects of classification in Section IV. Section V presents a brief summary and conclusions.

Probably the most important parts of this paper are in the Appendices, especially Appendices II to IV, which present the analytic methodologies and assumptions necessary to the work of this paper. These appendices explain our analytic procedures.

II The Analytic Categories

With 351 cities and towns in Massachusetts it is necessary for ease of comprehension to begin our analysis by grouping these cities and towns. We have chosen to do this by dividing the cities and towns into 4 population groupings. The groupings are cities and towns:

a. over 50,000 population
b. 25,000 to 50,000 population
c. 10,000 to 25,000 population
d. less than 10,000 population

Table I, shows the distribution of Massachusetts's 351 cities and towns and Massachusetts' population by these categories. As the reader can observe, about 60% of the number of cities and towns in Massachusetts comprise only 13% of the state's population. On the other hand, the 22 largest cities and towns in Massachusetts comprise about 42% of the state's population but only 6% of the share of the number of cities and towns. In the analysis that follows we will employ these population groups as a summary means of analysis.

Besides breaking the state into population groups, we subdivide the state into those communities essentially at or near 100% valuation and those communities which have yet to implement 100% valuation. Our analysis indicates there are 103 municipalities (3 cities and 100 towns) that either are at an assessment-to-sales ratio greater than 90% and/or are judged by the Tax Commissioner to be in compliance with the Sudbury decision. Only one community of the 103 is in the population group of over 50,000 (Brockton; 95,688); 72 (or 70%) of the communities are in the population group of less than 10,000. The 103 communities already at 100% valuation comprise a small share of the states' total population - 15.8%. In our following analysis, we exclude the 103 communities from our sample and concentrate entirely on the remaining cities and towns- those which face the effects of 100% valuation in the near future.[1]

[1] In these 103 communities the impact of 100% valuation is known. The impact of classification needs to be demonstrated and a report is in preparation. It is already clear, however, that in these communities residential tax bills will decline.

Table I. Frequency Distribution of Massachusetts Cities and Towns by Population Size Groups

Population Group	# Cities & Towns	% Share	Population in Each Group	% of Population in each Group
50,000 - Above	22	6.3	2,434,971	42.06%
25,000 - 50,000	39	11.1	1,206,196	20.83%
10,000 - 25,000	87	24.8	1,403,749	24.25%
10,000 - less	203	57.8	744,562	12.86%
Total	351	100.0	5,789,478	100%

Source: BRA Research/C. Carlaw/March 20, 1978
from Massachusetts State Census, 1975.

Non-100% Municipalities

The communities not at 100% valuation can be divided, as above, into four population categories. The share of population for the sample and the state are given in Table II. The cities and towns in the 50,000+ population grouping include 17 cities and 4 towns (Arlington, Brookline, Framingham, and Weymouth).

Table II Population Distribution for Non-100% Municipalities

Population Group	Share of Sample Population	Share of State Population
50,000+	47%	40%
25 - 50,000	23	19
10 - 25,000	20	17
less than 10,000	10	8
	100%	84%

Fiscal Characteristics of Sample

Besides looking at the share of population by grouping, it is instructive to analyze the population groupings by their fiscal characteristics. Table III presents data on the overall level of taxation. There are a number of unmistakable conclusions from this analysis:

1. The highest effective tax rate, 5.7%, is in the largest cities and towns, and the rate declines significantly as we go to the small population communities.

2. The lowest per capita income figures are in the largest cities and towns which is indicative of the urban poverty population. These cities and towns with 40% of the state's population have 58% of the state's poverty population.

3. The combination of high property taxes and low income combine to make taxes as a percent of income, - 9.53% - the highest in the largest cities and towns.

In sum, the larger communities in Massachusetts have the highest property tax burdens.

Table III. Pertinent Fiscal Characteristics of Non-100% Municipalities

Population Groups	Effective Tax Rate [1]	Share of Property Tax Levy	Per Capita Income	Taxes as a percent of income
50,000 +	5.7%	50%	$5,711	9.53%
25-50,000	3.6%	22%	6,222	8.14
10-25,000	3.2%	19%	6,156	7.95
less than 10,000	2.5%	9%	5,736	7.73
Totals	4.1%	100%	5,917	8.70

[1] The effective tax rate is the percent of the value of property paid in taxes each year.

The larger cities and towns, besides having a higher level of property taxes, also have a larger share of their property taxes paid for by commercial, industrial and utility property. This is evidenced in Table IV where the share of taxes paid by business is given for each population group. The fact that a 46% share of property taxes is presently paid by business in the larger municipalities helps mitigate the high level of taxes on residential property but also, it portends a larger shift of property taxes onto residential property as a consequence of 100% valuation.

Another distributional factor of some interest is demonstrated in Table V. Here we see that the larger cities and towns, which have only 29% of the single family homes have 80% and 70%, respectively, of the 3 family and multi-family of over 4 unit homes. In addition, we see that 66% and 68%, respectively, of the commercial and industrial properties are in the first two population groups.[1]

In sum, it is in the first two population groups that the 100% valuation problem - the shift of taxes off business and onto residences - will be most pronounced. In addition, it is these municipalities who have the predominate share of multi-family housing and commercial and industrial property.

III. The Effect of 100% Valuation

To present the effects of 100% valuation we have chosen the results from box A (See Appendix III). This presents an estimate of the worst possible case for residential property due to 100% valuation.[2] Some of the results by class of property are presented in Table VI. As can readily be observed, the average state-wide effect of 100% revaluation is to increase bills on one, two and three family residential property

[1] In terms of valuation, the first two population groups make up an even more significant share of commercial and industrial property. There is 76% share of commercial property and a 70% share of industrial property in the first two population group communites.

[2] The difference from this "worst possible case" to the use of results, say, from box C, which we use later, ranges from 3 to 7 percentage points.

Table IV: Share of Taxes Now Paid by Business by Population Group of Non-100% Municipalities*

Population Group	Share of total tax levy paid by business
50,000	46%
25-50,000	32
10-25,000	22
less than 10,000	21
Total	36%

* In making this calculation we aggregated the taxes paid by commercial, industrial and personal property. It is assumed here that all personal property is utility property. On the other hand, RC property was not calculated as, in any part, business property.

Table V Distribution of Parcels by Real Property Class

Population Groups	R1	R2	R3	R4	RC	C	I	AH	L
50,000	29%	60%	80%	70%	43%	46%	41%	.5%	19%
25-50,000	25%	22%	13%	17%	20%	20%	27%	9%	23%
10-25,000	29%	12%	5%	9%	17%	23%	20%	27%	31%
less than 10,000	17%	6%	2%	4%	20%	12%	12%	64%	26%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table VI Effects of 100% Valuation On Average Tax Bills by Population Groups and Across the State

Population Group	One Family	Two Family	Three Family	4+ Family	Commercial	Industrial	Vacant Land
50,000 +	+35%	+29%	+17%	-9%	-20%	-32%	+85%
25 - 50,000	+15%	+19	+10	-3	-18	-30	+45
10 - 25,000	+ 6	+ 3	+ 5	-8	-13	-21	+47
less than 10,000	+ 6	+ 6	+ 3	-5	-13	-24	+51
State-wide	+17%	+23%	+15%	-8%	-19%	-30%	+63%

by 17%, 23% and 15%, respectively, with concommitant declines in commercial and industrial property of 19% and 30%, respectively. The state-wide effects of 100% valuation are distributed quite unevenly by population groups. It is the larger cities and towns, followed by the medium size cities who are, on average, most adversely affected by 100% valuation. And, it is the older, industrial cities in particular which show the highest residential tax bill increases due to the effects of 100% valuation.[1]

[1] As to the matter of the adverse effects of 100% valuation on residential property, particularly in the cities, there is little dispute between the proponents and opponents of classification. Opponents of classification have termed the effects of 100% valuation as a "social disaster" and as a "social disruption" for the cities.

IV. Taxation by Classification

To mitigate the consequences of 100% valuation there is one policy option available at this time. This is to establish a classification system for property according to use and to allow differential assessment-to-market ratios in each class. Presently, such a system exists "de facto" in Massachusetts, especially in the cities, but it is extralegal and will be eliminated by 100% valuation. The only way a classification scheme would be legal in Massachusetts is to have a constitutional change. Such a provision will be on the ballot in November, 1978 at which time the people will approve or not approve a change in the constitution to allow "no more than 4 classes" of real property for the purposes of taxation.

The classification proposal on the ballot reads as follows:

Article of Amendment

> Article IV of chapter 1 of Part the Second of the Constitution is hereby amended by inserting after the words "and to impose and levy proportional and reasonable assessments, rates and taxes, upon all the inhabitants of, and persons resident, and estates lying, within said Commonwealth" the words: --, except that, in addition to the powers conferred under Articles XLI and XCIX of the Amendments, the general court may classify real property according to its use in no more than four classes and to assess, rate and tax such property differently in the classes so established, but proportionately in the same class, and except that reasonable exemptions may be granted.

The amendment does not spell out the details on what classification will look like. The details are spelled out in enabling legislation. Such legislation has been proposed, assuming passage of the amendment, by the Massachusetts Mayors Association in order that the public might have some idea of what classification is and how it might affect them.[1] In this section we will briefly present the goals of classification, the arguments in favor of classification, a description of the proposed legislation and the estimate of the proposed classification legislation on tax bills.

[1] As of this writing the proposed legislation is in 3rd reading in the House. The legislation has been endorsed by the League of Cities and Towns and by the Local Government Advisory Committee, among others.

Goals of Taxation by Classification

The primary goal of taxation by classification is to stop the shift of taxes now paid by commercial, industrial and utility property onto residential property. The attempt is to hold tax burdens approximately where they are now. It is not the intention of taxation by classification to shift significant amounts of taxes, on average, onto commercial and industrial property.

A second goal of classification is to equalize assessments within the established classes of property. In this way there will be equity of assessment within classes of property but not between classes of property.

It should be emphasized that taxation by classification does not subvert the Sudbury decision with regard to the need for all cities and towns to revalue property and to maintain appropriate assessment records and updates. Taxation by classification stops the shift of business property taxes onto homeowners and renters.

Arguments for Classification

Massachusetts is the one state which relies most on the property tax for state and local tax revenues. This has resulted in a level of property taxation which creates a disincentive to invest in property whether it is business or residential property. In this environment a number of attempts have been made to lessen the severe burden of property taxes. For business, there is 121A limited tax/limited dividend corporations. For homeowners and renters, assessing practices across the state have historically assessed commercial, industrial and utility property at a higher ratio to value than residential property. This has occurred independently across the state in most of the cities and towns. There is today, therefore, a "de facto" classification in operation in Massachusetts. In fact this reflects, in part, a value judgement independently made by each assessor that residential property should be taxed less than business property. A further implication of the current "de facto" system is

that business located in Massachusetts today already has adjusted to the higher assessments in their pricing structure and job development.

The fact that a "de facto" classification system already exists - and its elimination via taxation by 100% valuation will shift taxes onto residential property - is one of the stronger arguments for a "de jure" classification system. The already higher tax burden on business property is in place. There is agreement from all sides of this issue that 100% valuation is a "social disaster", particularly, in the older, industrial cities. Further, the "de facto" classification system reflects a philosophical argument for classification. This is, the "de facto" system reveals a preference for the view that income-producing property, which has a greater ability to pay, should carry a larger burden of the property tax burden than should homes.

In sum, to stop the shift of current taxes paid by business onto homes and to legalize the current practice of taxing income-producing property more than homes are the main arguments for taxation by classification.

Opponents of taxation by classification offer as their solution - "tax reform", i.e. a reduction in the level of property taxation. We have supported in the past and will continue to support and work for a lowering of property taxes. However, 100% valuation, and "tax reform", without classification as an intermediary step, will mean a tax reduction for business property, and no relief for homeowners and renters. This would occur because 100% valuation will shift taxes now paid by business onto homes. If, after 100% valuation, there is some reduction in the level of property taxes, the net result will be a reduction in business taxes, and no net reduction in the taxes on homes. For example, it is estimated that about $265M of business taxes will shift from business onto residential property due to 100% valuation. If "tax reform" reduced the level of property taxes by this amount, then the net effect is a reduction of

business taxes of $265M, and a same level of taxation on homes. Such a proposal is "tax reform" only for business property. The residential property owner will have no relief from property taxation.[1]

Taxation by classification will maintain, on average, the current distribution of the burden of taxation on homes versus business. It is a necessary first step to a two step program for property tax relief in Massachusetts. After taxation by classification, the second step is a meaningful program of "tax reform" for reduction in the level of taxation for all property taxpayers in Massachusetts.[2]

[1] It could also be noted that if this scenario did occur, the one success at tax reform in this state will go to business property. We doubt a second success, which would provide relief to homeowners and renters would ever occur. It is also interesting to note that an analysis of state tax sources shows that the share of state taxes paid by corporations has fallen from 37.2% in 1950 to 14.6% in 1977.

[2] We have already begun work on a review and analysis of alternative property tax reform proposals. We will be reporting more on this in the future.

The Massachusetts Mayors Association's Proposed Legislation for Taxation by Classification

The classification amendment to the Massachusetts Constitution allows for up to four classes of property. It does not spell out the classes or the ratios of assessment-to-market value within each class. For this reason the Massachusetts Mayors Association has submitted a bill to the legislature to define a proposed classification model and to begin, in concrete terms, a debate on the subject of what form classification might take in Massachusetts. Given the diverse assessing practices within each city and town, it was known that one classification model applied uniformly across all cities and towns would not fit everybody perfectly. Nevertheless, it was felt that the social disruption of 100% valuation is intolerable and that classification would definitely stop the effects of 100% valuation.

The intent of the classification bill is to stop the shift of the property taxes now paid by business onto homeowners as a result of 100% valuation. The bill will establish four classes of real property and apply a different ratio for each.

The classifications and classification ratios are:

1.	Residential	40%
2.	Commercial	50%
3.	Industrial	55%
4.	Open Space	25%

In addition, the bill will establish a residential exemption of $5,000. This exemption is in addition to all other exemptions that presently exist (e.g. elderly, widow, veteran).

The following is an example that shows the effect of classification on residential versus commercial property.

	RESIDENTIAL	COMMERCIAL
Fair Cash Value	$30,000	$30,000
Classification Ratio	40%	50%
Assessed Value	12,000	15,000
Residential Exemption	5,000	0
Taxable Value	7,000	15,000
Tax Bill will equal	$7,000 X local tax rate	$15,000 X local tax ra

The effect of classification will be to prevent a shift of taxes from businesses to residences, to maintain the historic practice of giving preferential treatment to residential properties, and to equalize property tax assessment within each of the four classifications.

The Residential Exemption

For each parcel of residential property $5,000 is automatically deducted from the assessed value after the application of the classification ratio. This exemption was introduced into the bill to help the classification model to "fit" better the heterogeneous residential structure in the cities versus the homogeneous residential structure in the towns. It is in the cities of over 50,000 population where there is 80% of three family and 70% of four family plus property. The R4 property, in particular, includes the many large apartment complexes which under current assessing practices is considered commercial property. Because of this, the establishment of one class - residential - which includes single family and four family plus parcels would lead to a shift of taxes within the residential class from multiples to single families. The residential exemption stops this from happening. The reason it works is because the value of single families is much less than the value of multi-family and, of course, the $5,000 is a higher percentage of market value, the lower is the value of property. Without the residential exemption the proposed classification ratios would not work well, at all, for cities over 50,000 population.

ESTIMATES OF THE EFFECTS OF TAXATION BY CLASSIFICATION[1]

The estimates of the effects of Taxation by Classification show a slight decrease in residential tax bills state-wide (-3%to -7%), and a slight increase in commercial and industrial property tax bills (0%to +7%). The numbers demonstrate the effect of classification if imposed today. The current bias of the classification numbers in favor of residential property would most likely be dissipated over time. This would happen because residential property--single family homes, in particular--are increasing the fastest in value. This means that in one to two years, when classification goes into effect across the Commonwealth, the residential share of value would be higher and this would have the effect of reducing the minor increases in commercial and industrial tax bills seen here. All independent evidence on value, as well as a comparison of the 1976-78 equalization survey, support this conclusion. (See Appendix A.II.)

[1]Data available from the Department of Corporations and Taxation does not fit exactly the categories proposed by the Classification Bill. For this reason, adjustments to the data were necessary and readers should consult the appendices for our methodology and conclusion concerning the data base. The raw data is questionable and estimates are "ball park". Once again, we repeat our caution that the estimates here, as in the case of 100% valuation, are illustrative and not predictive.

For the first two population groups, in which 70% of the sample population resides, the estimates show a slight decline in residential tax bills (-2% to -6%) and also in industrial tax bills (-3% to +1%). Commercial tax bills show a slight increase (+1% to +11%). For the small population groups, the numbers show a larger decrease for residential property and increase for commercial and industrial property. This happens in these communities because of a number of factors. First, the data on commercial and industrial valuation is sketchy for these communities. Because of this, there is some justifiable skepticism with regard to the estimates here, which is supported by our analysis in Appendix III where it is shown that the average error in predicting commercial and industrial tax bills is over 40%. Second, they are primarily residential in nature and have a small commercial and industrial sector. Third, the increases per parcel are rather small, $658 and $2108 for commercial and industrial property in the 10,000 to 25,000 population group, and $533 and $1278 for commercial and industrial property in the less than 10,000 population group.[1]

[1]Small or large, are, of course, relative concepts. We see these average increases per parcel small in relation to the value of this kind of property and given the nature of commercial and industrial property vis-a-vis residential property.

Table VII: The Effects of Taxation by Classification under the Mayors' Association Bill: Number represents the percentage change in tax bills from current status[1]

Population Group	Residential	Commercial	Industrial	Open Space
50,000 +	-2% to -6%	+1% to +3%	-3% to 0%	*
25,000 - 50,000	-2% to -6%	+7% to +11%	-3% to +1%	*
10 - 25,000	-6% to -10%	+16% to +22%	+12% to +17%	+11% to +13%
less than 10,000	-5% to -10%	+19% to +26%	+11% to +17%	+16% to +18%
State wide	-3% to -7%	+3% to +7%	0% to +4%	*

[1] The range is established by estimates from box B and box D. The higher number in each range comes from estimates from box D.

* For cities and towns over 25,000 population it was assumed that none of the vacant land category was eligible for open space. Rather it was assumed that all vacant land was residential land. This leads to increases in vacant land tax bills of $273 per parcel (57%) in the first population group and $67 per parcel (38%) in the 2nd population group. On the other hand, for cities and towns of less than 25,000 population it was assumed that all vacant land was classified as open space. For more on the rationale of the assumptions, and on the data, see the appendices.

Data was not available on the open space category as defined in the classification bill of the Mayors Association. We did try to estimate this effect, however, by assuming that all vacant land in the towns under 25,000 was in fact eligible for the open space designation. On this assumption, we see some increase in tax bills on the open space nee vacant land. However, their shifts are small compared to the increases under 100% and most importantly, the shifts, in absolute dollar amounts, are quite small. Observed in this way the per parcel average increase in tax bills is $34 in the 10,000 to 25,000 population group and $30 in the less than 10,000 population group. The percentage figures in Table VII are quite deceiving.

The classification model presented by the Mayors Association is not a panacea for the ills of the property tax burden in Massachusetts. It is but a first step of a two step program for dealing with these ills. The choice in what will be Question No. 1 facing Massachusetts voters in November, 1978 is not between their current tax bills and tax bills under classifcation, but rather, given the court mandate in Sudbury, the choice is between taxation by 100% valuation or taxation by classification. Table VIII frames the choice by comparing for each category the changes in average tax bills under 100% valuation versus classification. As can be seen, from a perusal of the Table, residential property is much better off under classification than under 100% valuation.

In sum, the classification model as proposed by the Massachusetts Mayors Association sets up a preferential tax status for residential property. It will stop the shift of taxes now paid by business onto homes. It is clear that classification is a necessary first step in Massachusetts for tax relief.

Table VIII: The Choice Facing Voters:
Taxation by 100% versus Taxation by Classification
(The numbers represent the percentage change
from current status, on average[1])

Population Group	ALL RESIDENTIAL		COMMERCIAL		INDUSTRIAL	
	100%	Classification	100%	Classification	100%	Classification
50,000+	+23%	-2%	-20%	+1%	-32%	-3%
25 - 50,000	+15%	-2%	-18%	+7%	-30%	-3%
10 - 25,000	+5%	-6%	-13%	+16%	-21%	+12%
less than 10,000	+6%	-5%	-13%	+19%	-24%	+11%
State-wide	+15%	-3%	-19%	+7%	-30%	+4%

[1]For this table, the numbers show the least favorable case from the point of view of residential property.

V. Summary and Conclusions

This report is the first part of a series of analyses of the effects of 100% valuation versus classification. Already, one unmistakable conclusion is evident: all residential property in Massachusetts will be better off under classification than under 100% valuation. Under the effects of 100% valuation, if done today, single-family tax bills, for instance, will rise 17%, on average, across the state, with the most severe impact in the older, industrial cities. Under classification, residential tax bills will remain within a few percentage points of where they now are.

Taxation by classification is the first step of a two step program necessary to alleviate the property tax burden in Massachusetts. Classification will stop the shift of taxes currently paid by business property onto homes. The second step is a necessary reduction in property tax levels across the Commonwealth. This can and should occur through a concerted program of "tax reform" at the state legislative level. Such a program has been advocated by Mayors and others for many years. But, it should be unmistakably clear that any reduction in the level of property taxes without classification will mean only a tax bill reduction for business property and not for homes.

In November, 1978, the voters of Massachusetts face a choice, either 100% valuation or classification. The only way to stop an increase in residential tax bills caused by 100% valuation is approval of a change in the Massachusetts Constitution to allow classification.

Appendix I. A comparison of 100% Valuation versus Classification on the Average Single-Family Tax Bills in 1978; by City and Town.

This appendix compares the current tax bill to the estimated 100% tax bill and the classification tax bill for the average single-family home in the cities and towns which have yet to go to 100% valuation. Again, the estimates are illustrative and not predictive. We report these numbers on single-family homes because single-family homes, in particular, are most adversely affected by 100% valuation.

TABLE A.I -1-

AVERAGE SINGLE-FAMILY TAX BILLS IN 1978;

NOW, UNDER 100% VALUATION, AND UNDER CLASSIFICATION (241)

CITIES OVER 50,000 -21-	NOW	UNDER 100%	UNDER CLASSIFICATIO
ARLINGTON	$1895	$1947 - 1968	$1743 - 1819
BOSTON	1365	2280 - 2477	1395 - 1425
BROOKLINE	3158	3668 - 3736	3201 - 3292
CAMBRIDGE	1931	2997 - 3222	2073 - 2231
CHICOPEE	971	1303 - 1377	966 - 982
FALL RIVER*	1594	1807 - 1916	1438 - 1597
FRAMINGHAM	1462	1649 - 1685	1363 - 1417
LAWRENCE	799	1334 - 1456	867 - 913
LOWELL	1018	1427 - 1517	1042 - 1094
LYNN	1416	1989 - 2090	1429 - 1485
MALDEN	1248	1728 - 1862	1304 - 1326
MEDFORD	1509	1619 - 1696	1377 - 1415
NEW BEDFORD	1068	1259 - 1376	931 - 1032
NEWTON	2179	2452 - 2575	2205 - 2246
PITTSFIELD	1168	1297 - 1300	902 - 1054
QUINCY	1254	1683 - 1793	1276 - 1309
SOMERVILLE*	1564	1761 - 1983	1422 - 1469
SPRINGFIELD	942	1257 - 1312	777 - 871
WALTHAM	1392	1563 - 1590	1173 - 1221
WEYMOUTH	1378	1454 - 1535	1163 - 1291
WORCESTER	1057	1450 - 1516	928 - 1011

CITIES 25-50,000 -34-	NOW	UNDER 100%	UNDER CLASSIFICATION
ANDOVER	$1701	$1733 - 1767	$1529 - 1554
ATTLEBORO	1166	1326 - 1347	1012 - 1079
BELMONT	2101	2149 - 2163	2052 - 2084
BEVERLY	1614	1748 - 1781	1498 - 1571
BILLERICA	1449	1499 - 1582	1266 - 1308
CHELSEA	701	1391 - 1498	558 - 601
DANVERS	1397	1412 - 1423	1144 - 1195
EVERETT **	757	1531 - 1787	1060 - 1130
FITCHBURG	1118	1237 - 1257	852 - 972
GLOUCESTER	1736	1884 - 1932	1746 - 1847
HAVERHILL	1201	1513 - 1616	1189 - 1238
HOLYOKE	1092	1696 - 1743	1146 - 1165
LOEMINSTER	974	1104 - 1115	831 - 888
LEXINGTON	1877	2007 - 2054	1764 - 1831
MARLBOROUGH	1050	1324 - 1405	1058 - 1060
MELROSE	1649	1692 - 1710	1537 - 1602
METHUEN	1003	1103 - 1157	943 - 967
MILTON	1652	1689 - 1816	1622 - 1646
NATICK	1472	1488 - 1510	1240 - 1280
NEEDHAM	1702	1793 - 1812	1560 - 1622
NORTHHAMPTON	1148	1290 - 1320	1037 - 1085
NORWOOD	1187	1254 - 1262	1025 - 1046
PEABODY	1543	1624 - 1634	1389 - 1421
PLYMOUTH	633	695 - 787	407 - 538

** Average for 1, 2, 3 families combined.

CITIES 25-50,000 -34-	NOW	UNDER 100%	UNDER CLASSIFICATI
RANDOLPH	$1379	$1430 - 1463	$1221 - 1263
REVERE	1346	1854 - 1964	1350 - 1430
SALEM	843	1122 - 1345	756 - 776
STOUGHTON	1152	1222 - 1234	1014 - 1079
TAUNTON	932	1057 - 1115	824 - 838
WAKEFIELD	1517	1644 - 1695	1454 - 1477
WATERTOWN	1352	1779 - 1947	1442 - 1444
WELLESLEY	2185	2245 - 2271	2088 - 2118
WEST SPRINGFIELD	1013	1015 - 1030	667 - 789
WESTFIELD	1181	1248 - 1268	1028 - 1052

CITIES/TOWNS 10-25,000 -61-	NOW	UNDER 100%	UNDER CLASSIFICATION
ABINGTON	$1241	$1259 - 1289	$1081 - 1141
ADAMS	802	896 - 924	674 - 748
AGAWAM	990	1064 - 1079	846 - 926
AMESBURY	1115	1179 - 1188	885 - 964
AMHERST	1369	1362 - 1381	1177 - 1247
ATHOL	408	578 - 612	346 - 388
BEDFORD	1331	1372 - 1413	1142 - 1165
BELLINGHAM	1083	1090 - 1107	951 - 1038
BOURNE	773	788 - 809	678 - 740
BURLINGTON	1694	1873 - 1898	1504 - 1560
CANTON	1543	1611 - 1629	1337 - 1416
CLINTON	749	844 - 913	646 - 647
DRACUT	1097	1160 - 1238	1056 - 1062
EASTHAMPTON	1118	1134 - 1167	951 - 1018
FAIRHAVEN	680	795 - 856	604 - 650
FALMOUTH*	1024	1067 - 1127	1023 - 1044
FOXBORO	1373	1347 - 1376	1125 - 1167
FRANKLIN	1482	1516 - 1548	1323 - 1411
GRAFTON	1118	1139 - 1154	1003 - 1074
GREENFIELD	1128	1209 - 1233	920 - 995
HANOVER	1744	1696 - 1731	1465 - 1525
HINGHAM	1724	1699 - 1732	1597 - 1628
HOLBROOK	1076	1078 - 1088	772 - 944
IPSWICH	1408	1438 - 1454	1338 - 1371
LONGMEADOW	2019	2012 - 2031	1928 - 1995

CITIES/TOWNS 10-25,000 -61-	NOW	UNDER 100%	UNDER CLASSIFICATIO
LUDLOW	$ 998	$1018 - 1087	$ 825 - 924
MANSFIELD	1121	1264 - 1289	1020 - 1045
MARBLEHEAD	1807	1827 - 1831	1735 - 1784
MARSHFIELD	1437	1420 - 1456	1328 - 1375
MEDFIELD	2107	2054 - 2081	2006 - 2036
MIDDLEBOROUGH	981	1063 - 1087	825 - 863
MILFORD	1097	1319 - 1451	1120 - 1134
MILLBURY	832	845 - 968	648 - 667
NEWBURYPORT	1138	1236 - 1263	1004 - 1071
NORTH ADAMS	932	1144 - 1174	778 - 857
NORTH ANDOVER	1049	1230 - 1295	1060 - 1061
NORTH READING	1420	1393 - 1421	1263 - 1291
NORTHBOROUGH	1461	1490 - 1520	1302 - 1352
NORTHBRIDGE	1081	1152 - 1170	984 - 1040
PEMBROKE	1239	1311 - 1331	1146 - 1239
ROCKLAND	1366	1399 - 1427	1174 - 1236
SAUGUS	1228	1322 - 1332	1057 - 1104
SCITUATE	1600	1585 - 1634	1516 - 1548
SEEKONK	1101	1116 - 1130	967 - 1011
SHARON	1861	1843 - 1865	1700 - 1788
SHREWSBURY	881	916 - 928	759 - 786
SUDBURY	2135	2112 - 2141	1925 - 2037
SWAMPSCOTT	2462	2511 - 2535	2351 - 2419
SWANSEA	825	848 - 857	702 - 777
WALPOLE	1476	1570 - 1612	1314 - 1419

CITIES/TOWN 10-25,000 -61-	NOW	UNDER 100%	UNDER CLASSIFICATION
WAREHAM	$ 486	$ 517 - 523	$ 302 - 358
WEBSTER	589	759 - 790	551 - 585
WESTBOROUGH	1225	1335 - 1351	1069 - 1104
WESTFORD	1450	1416 - 1448	1301 - 1365
WESTON	2984	2945 - 2957	2849 - 2921
WESTPORT	809	798 - 864	763 - 764
WESTWOOD	1854	1921 - 1948	1696 - 1750
WHITMAN	1343	1335 - 1357	1068 - 1216
WILMINGTON	1386	1485 - 1504	1172 - 1202
WINCHESTER	2332	2351 - 2380	2217 - 2291
WINTHROP	1295	1295 - 1319	1210 - 1236

TOWNS LESS THAN 10,000 -125-	NOW	UNDER 100%	UNDER CLASSIFICATIO
ACUSHNET	$ 780	$ 810 - 934	$ 700 - 716
ALFORD	573	523 - 535	463 - 544
ASHBY	919	955 - 964	812 - 883
AVON	1185	1273 - 1294	938 - 975
AYER	538	656 - 745	402 - 438
BERKLEY	816	769 - 788	691 - 733
BERLIN	1142	1122 - 1142	998 - 1046
BLACKSTONE	957	931 - 940	724 - 825
BOLTON	1433	1461 - 1484	1341 - 1380
BOXBOROUGH	1339	1468 - 1481	1291 - 1321
BOXFORD	1780	1702 - 1763	1724 - 1736
BOYLSTON	1107	1101 - 1104	990 - 1028
BRIMFIELD*	827	834 - 891	709 - 779
BUCKLAND	752	752 - 804	548 - 635
CARVER	889	1099 - 1233	904 - 926
CHARLTON	561	574 - 679	525 - 528
CHESHIRE	720	699 - 704	580 - 651
CHILMARK*	580	534 - 540	566 - 583
COHASSET	1972	1909 - 1922	1777 - 1851
CONWAY	729	610 - 648	504 - 573
CUMMINGTON	638	626 - 655	475 - 530
DEERFIELD	507	517 - 559	361 - 391
DIGHTON	689	751 - 812	584 - 588
DUDLEY	779	879 - 911	805 - 811

TOWNS LESS THAN 10,000 -125-	NOW	UNDER 100%	UNDER CLASSIFICATION
DUNSTABLE	$1213	$1235 - 1354	$1197 - 1197
EAST BRIDGEWATER	1328	1404 - 1421	1115 - 1258
EAST BROOKFIELD	733	727 - 737	582 - 635
EDGARTOWN	405	376 - 388	367 - 383
EGREMONT	703	774 - 789	693 - 726
ERVING	115	123 - 245	47 - 70
ESSEX	630	637 - 647	496 - 535
FREETOWN	630	764 - 911	639 - 644
GAY HEAD*	1468	1023 - 1134	1249 - 1333
GEORGETOWN	1403	1427 - 1443	1280 - 1343
GOSNOLD	609	853 - 879	797 - 855
GRANBY	1066	1044 - 1075	888 - 947
GRANVILLE	449	454 - 860	404 - 590
GREAT BARRINGTON	839	1061 - 1084	800 - 873
GROTON	690	705 - 722	593 - 642
GROVELAND	1177	1227 - 1257	1107 - 1162
HANCOCK	355	289 - 300	183 - 212
HANSON	1258	1173 - 1190	1055 - 1140
HARDWICK	866	884 - 909	729 - 799
HARVARD	1671	1742 - 1827	1735 - 1763
HARWICH	723	724 - 733	653 - 709
HATFIELD	686	737 - 750	530 - 571
HAWLEY	345	330 - 333	266 - 307
HOPEDALE*	1177	1411 - 1419	1115 - 1155

TOWNS LESS THAN 10,000 -125-	NOW	UNDER 100%	UNDER CLASSIFICATIO
HUBBARDSTON	$ 972	$ 952 - 997	$ 801 - 898
KINGSTON	1062	1186 - 1256	983 - 1050
LAKEVILLE	847	867 - 872	780 - 811
LANCASTER	970	975 - 1004	847 - 881
LENOX	1196	1197 - 1212	1001 - 1060
LEVERETT	760	749 - 800	665 - 728
LEYDEN	1052	975 - 987	929 - 1005
LINCOLN	2455	2374 - 2463	2259 - 2392
LUNENBURG	1022	1028 - 1043	897 - 955
MARION	1032	1042 - 1078	929 - 1016
MATTAPOISETT	939	939 - 985	857 - 894
MAYNARD	1293	1358 - 1387	1080 - 1163
MEDWAY	1310	1328 - 1427	902 - 1260
MENDON	784	783 - 820	682 - 725
MERRIMAC	1026	1117 - 1133	991 - 1024
MIDDLEFIELD	452	458 - 473	391 - 445
MILLIS	1567	1613 - 1622	1373 - 1460
MILLVILLE	711	672 - 692	516 - 590
MONTAGUE	792	806 - 860	594 - 633
MONTGOMERY	889	825 - 842	786 - 828
NAHANT	1368	1353 - 1366	1205 - 1316
NANTUCKET	765	750 - 853	738 - 792
NEW BRAINTREE	1087	1005 - 1015	862 - 982
NEW SALEM	418	425 - 677	413 - 413

TOWNS LESS THAN 10,000 -125-	NOW	UNDER 100%	UNDER CLASSIFICATION
NEWBURY	$ 800	$ 835 - 891	$ 755 - 775
NORFOLK	1598	1541 - 1581	1422 - 1536
NORTH BROOKFIELD	822	858 - 870	679 - 754
NORTHFIELD	618	652 - 657	400 - 485
NORTON	1178	1128 - 1150	966 - 1036
NORWELL	2042	2087 - 2102	1924 - 2007
ORANGE	705	753 - 768	564 - 612
OTIS	253	267 - 280	202 - 238
PAXTON	1224	1216 - 1225	1176 - 1198
PERU	425	400 - 413	285 - 303
PETERSHAM	1046	948 - 1023	841 - 952
PLAINFIELD	632	702 - 839	653 - 669
PLYMPTON	1244	1239 - 1274	968 - 1124
PRINCETON	1254	1183 - 1205	1137 - 1197
PROVINCETOWN	1667	1667 - 1674	1461 - 1525
RAYNHAM	1274	1283 - 1287	1119 - 1153
ROCHESTER	1017	983 - 1041	828 - 920
ROCKPORT	1101	1112 - 1136	1018 - 1056
ROWLEY	1387	1425 - 1440	1295 - 1339
ROYALSTON	535	623 - 660	500 - 547
RUSSELL	446	858 - 925	647 - 648
RUTLAND	828	852 - 864	717 - 780
SALISBURY	869	911 - 934	689 - 756
SANDISFIELD	607	531 - 573	458 - 509
SAVOY	481	426 - 433	338 - 402

TOWNS LESS THAN 10,000 -125-	NOW	UNDER 100%	UNDER CLASSIFICA
SHEFFIELD	$ 579	$ 504 - 525	$ 436 - 441
SHELBURNE	840	944 - 991	691 - 831
SHIRLEY*	772	745 - 831	651 - 652
SHUTESBURY*	634	630 - 653	559 - 627
SOUTHBOROUGH	1410	1465 - 1518	1282 - 1318
SPENCER	723	734 - 743	594 - 65
STOCKBRIDGE	808	781 - 844	711 - 749
STURBRIDGE	958	971 - 990	800 - 832
SUTTON	828	879 - 964	813 - 801
TOLLAND	235	229 - 325	228 - 284
TOWNSEND	881	892 - 902	764 - 804
TYNGSBOROUGH	1079	1088 - 1097	913 - 984
TYRINGHAM	496	477 - 515	424 - 464
UPTON*	865	851 - 871	702 - 798
UXBRIDGE	817	885 - 1089	790 - 833
WARE*	667	847 - 884	651 - 695
WARREN	691	709 - 732	487 - 532
WENHAM	1762	1775 - 1788	1726 - 1773
WEST BOYLSTON	1046	1097 - 1112	930 - 953
WEST BROOKFIELD*	789	794 - 796	669 - 733
WEST NEWBURY	1218	1225 - 1242	1142 - 1214
WEST STOCKBRIDGE*	807	828 - 854	708 - 776
WEST TISBURY	574	493 - 541	485 - 496
WHATELY	781	658 - 737	660 - 687
WILLIAMSTOWN	1379	1397 - 1414	1218 - 1274

TOWNS LESS THAN 10,000 -125-	NOW	UDNER 100%	UNDER CLASSIFICATION
WICHENDON	$ 833	$ 906 - 924	$ 663 - 733
WINDSOR	472	345 - 370	285 - 327
WORTHINGTON	568	557 - 593	501 - 527

* Indicates a city or town where current assessment data was questionable and needs more work.

RT:plc

Appendix II: Evaluating the Data on Equalized Value

A. Description of Trends: 1976-1978

The data on equalized value employed in this study comes from the biennial equalization survey of the Massachusetts Department of Corporations and Taxation. Data from the 1976 and 1978 surveys by class of property and by city and town were stored and analyzed. The basic data includes assessed value and equalized value by class of property. While the assessed value figures are taken from assessment records, the equalized values are estimates based on a sample of sales, and where necessary appraisals.[1] The question that arises is how good are these estimates of equalized value? In what follows we briefly analyze the data on equalized value.

Total equalized value in Massachusetts rose 11%, on average, from the 1976 survey to the 1978 survey. This compares with a 15% increase from the 1974 survey to the 1976 survey.

A presentation of the distribution of the change in equalized valuation from 1976 to 1978 is set forth in Table A.II.I. Thirty three (33) communities actually had a decrease in equalized values, while 26 communities had an increase of over 30%. Of the 33 communities with a decrease, only 5 were cities and 4 of 5 were cities for which reliable data was not available in 1976. Most of the decreases in equalized values were in small towns from the less than 10,000 population group.

While the average increase was 11%, there was quite a distinct variation by class of property. This is shown in Table A.II.2. where the average equalized value per parcel for 1976 and 1978 is given for each class of property. The data indicates that only single family, and two family homes, plus vacant land appreciated significantly, with an actual decline in value of R4's, RC's and I property. Such divergent trends by class of property strikes us as odd, especially in the inflated real estate market. Unfortunately, there is no independent data for

[1] For a description of the procedure see Department of Corporations and Taxation, 1976 Equalized Valuations of Massachusetts Cities and Towns: Selected Tax Base Information April, 1977 pp. 86-95.

Table A.II.1 Frequency Distribution of Percentage Change in Equalized Value for all 351 Cities/Towns of Massachusetts: 1976 to 1978

Class -%-	Percentage distribution		Frequency distribution
Below - 10%	3%		-12-
-10 to -5.1%	2%		-8-
-5 to -.1%	4%		-13-
0 to 4.9%	17%		-60-
5 to 9.9%	21%		-75-
10 to 14.9%	18%		-62-
15 to 19.9%	16%		-55-
20 to 24.9%	8%		-27-
25 to 29.9%	4%		-13-
30% +	7%		-26-
	100%	Total	-351-
Average % Increase in Equalized Value	11%		

Table A.II. 2 Average Parcel Equalized Value by Class of Property with Personal Property x1000 for All cities and towns for which data was available [1]

	1976	1978	% Change
R1	$ 32,393	$ 37,196	+14.8%
R2	28,168	31,963	+13.5%
R3	24,557	24,930	0%
R4	88,099	83,188	- 5.5%
RC	60,032	57,059	- 5.0%
C	114,903	121,214	+ 5.0%
I	343,934	319,683	- 7.0%
L	8,252	9,011	+ 9.0%
P	2,984,786	3,318,327	+11.1%

[1] It should be noted that the 1976 data set did not include, because of a lack of data New Bedford, Newton, Revere, Everett, Somerville, and Woburn. An adjustment was made in P to exclude P's equalized value in these communities from the total given in 1978. This makes the '76 and '78 valuations comparable.

for Massachusetts with which we are familiar that we could compare to these numbers. [1]

However, as we will see, the three categories of property for which there is an ample sample size are R1's, R2's and L. For other categories, there is not an adequate sample size.

B. Construction of the Equalized Value Numbers

Our study of the equalized value numbers has lead us to be very cautious in the use of these numbers because of two methodological drawbacks in the construction of the equalized values. These drawbacks are in the construction of estimates for the value of personal property and in the sample sizes for the value estimates of R4, C, and I property

The Equalized Values of Personal Property

Equalized values or sales data on real property are obtained primarily through sales data or when necessary by appraisals. For personal property there are two categories of personal property - "certified" personal and "other" personal. In the certified personal property category is included the valuation of gas pipe lines and the machinery, poles, wires and underground conduits, wires and pipes of telephone and telegraph companies. The "other" category of personal property includes, at least theoretically, all personal property of inhabitants of Massachusetts, wherever situated. This includes "goods, chattels, money and effects" etc. unless exempted. Realistically, most other personal property is the personal property of electric companies and other utilities not included in the certified category of personal property.

The reliability of the equalized value estimates of personal property is suspect according to most quarters. Mass Fair Share, for instance, issued a report in March, 1978 raising some questions about the valuations of 769 miles of gas pipelines owned by Tenneco Inc., and Algonquin Gas

[1] Comparative analyses of the '76 versus '78 surveys have been done. Reports are in draft stages and will be available from the author shortly.

Transmission Co. These valuations affect 140 cities and towns. Although no agreement has been reached on the issue, Commissioner Fitzmaurice has been quoted in the Boston Globe as saying that the pipelines "probably are undervalued...."

Discussions with people in the Local Property Tax Bureau of the Department of Corporations and Taxation -- a hard working and sorely understaffed group -- indicated estimates of "other" personal property values are determined based on what is the composite ratio on real property in a city or town. The assumption here is that there is a relationship between the assessments on real and on personal property. For instance, if the composite ratio is 35%, then the personal property ratio is put at 50%. Such a procedure "assumes" personal property is assessed higher than real property, and deliberately errs on the side of conservatism in placing a value on personal property.

One former top official in the Local Property Tax Bureau said that the personal property values are "total arbitrary". After a second thought, this comment was reduced to "best reasonable judgement". No matter which is the best description of personal property valuations, the data is suspect.[1] In sum, we do not have any good estimates of the value of personal property. In addition, the estimates we do have, are undervalued because of the estimating procedure.

Samples in Estimating Equalized Values

As we indicated earlier, estimates of value are based on a sample of sales and appraisals. Table A.II.3 shows the number of sales for each class of real property, while Table A.II.4 shows the percentage distribution. The sample size for 1978 was significantly larger, although appraisal figures are not available, then in 1976. According to Mr. Arthur Ecclestone

[1] We were told by one person that estimates of utility valuations in parts of Boston were taken from sources at Boston Edison, who claimed to know the current assessment-to-sale ratio on Edison's property. This is hardly a reliable, independent source.

Table A.II.3: Number of Sales for the 1978 Equalization Survey

Population group	R1	R2	R3	R4	RC	C	I	L
50,000+	12,532	4208	2234	1267	282	976	77	955
25-50,000	13,325	1985	528	438	112	520	80	1309
10-25,000	17,925	1126	342	334	133	495	53	3193
less than 10,000	10,005	437	79	129	136	305	38	3181
State-wide	53,787	7,756	3,183	2,168	663	2,296	248	8638

Table A.II. 3: Distribution of Sales for the 1978 Equalization Survey

Population group	R1	R2	R3	R4	RC	C	I	L
50,000+	56%	19%	10%	6%	1%	4%	.3%	4%/100%
25-50,000	73%	11%	3	2%	.6%	3%	.4%	7%
10-25,000	76%	5%	1%	1%	.6%	2%	.2%	14%
less than 10,000	70%	3%	.6%	.9%	1%	2%	.3%	22%
State-wide	68%	10%	4%	3%	.8%	3%	.3%	11%

of the Department of Corporations and Taxation, the 1978 appraisal numbers will not show much absolute change from the 1976 numbers. What can be seen immediately is that for the state as a whole the two classes of property with the most sales (no appraisals are done for these classes) are R1's and L. On the other hand, C & I have a very small share of sales in the overall sample. The implication is that estimates of value for R1's and L's are more reliable than estimates for other categories of property. State-wide 78% of the sales are R1's and L's. Only 3.3% are C and I sales. When this is studied by population groups, we notice that R1's and L comprise 90% and 92% of all sales in the 10-25,000, and the less than 10,000 population groups, respectively. On the other hand, industrial and commercial sales are quite small. Hence, we must be cautious in using C & I value estimates at all times and especially for the smaller population groups. Because of the small (and in some instances no) samples on C and I we only will report estimates for the effects of 100% valuation and taxation by classification only by those cities where the sample seems reasonable in size. Any estimates of either 100% valuation or classification should be considered only after considering the sample sizes,[1] for each city and town. These tables are available from the author.

[1] Of course, besides sample size problems in the data, there is also the questions of how representative is the sample and how much dispersion is there around the average the former question we have no way to answer. Future reports will deal with dispersion around the average.

Appendix III: Testing the "Predictability" of Data on Equalized Value

The analysis in Appendix II raises more questions than it can answer. Unfortunately, there is no comparable data set against which we can measure the "goodness" of the equalized value estimates for each city or town. One test we did run on the data, was to test the "predicatability" of the equalized study survey. This was done by comparing the "predicted" tax bills at 100% valuation for each class of property as given by the 1976 equalization survey to what were actual tax bills in 1978. In this way we were able to judge how good was the data in "predicting" the effects of 100% valuation in a sample of 32 towns that went to 100% valuation in the period 1976 to 1978. In making this analysis we employed the 1978 property tax levy for both dates.[1]

The results overall were not encouraging, although the prediction errors were not terribly large on single family tax bills. For single family tax bills the average 1978 tax bill was within 3.7% of the "predicted" 100% tax bill.[2] In fact, except for four communities the difference between the predicted tax bill and the 1978 tax bills was less than $100. The average absolute error was, in fact, $40.[3] However, this is the end of the good news on the "predictability" of the data. For the other classes of property the errors were quite large. The errors range from 138% on the predictions for A/H property to 26.3% on personal property. Table A.III.1. presents the average percentage error in the "predictability" on the data by class.[4]

[1] No adjustment was made for new construction or any demolition of the tax base over the 2 year period. However, such as adjustment is never made in "predicting"!

[2] This average is a weighted average where the weight is the 1976 100% or predicted tax bill.

[3] In 16 communities the error was positive, i.e., the prediction was less than actual, and in 16 communities the error was negative, on R1's.

[4] The fact that the data is not good in all classes in "predictability" is not a criticism of the data collection methods of the Dept. of Corp. & Taxation. It simply says that there is a difference between predictions based on equalized values and on what the mass appraisals firms finally write down as assessments. Who is right or who is wrong, is anyone's guess.

Table A.III.2 Average Percentage Error of the "Predictability" of Data by Class: 32 towns

Class of Property	Average Percentage Error
R1	3.7%
R2	62.7%
R3	53.7%
R4	42.1%
RC	58.8%
C	44.7%
I	40.9%
AH	138%
L	42.9%
P	26.3

Obviously, the extremely large errors in "predicting" for all but the R1 class of property, cancel each other out, on average. This is the only way one can explain the ability of the data to "predict" the R1 tax bills, since the data are interdependent.

It is probably a fair hypothesis that the results in Table A.III.1. reflect, at least, in part, the fact that the 32 towns are small and primarily single family residential communities. Hence there is a large sample of sales data on R1's but little available in the way of good data on the other classes of property.[1] This point is supported by looking at the distribution of sample size by class of property for the 32 towns. This is given in Table A.III.2.

Table A.III.2 Distribution of Sample Size
by Class of Property for 32 towns: 1976 Survey

Class	% of Sales	Number of Sales
R1	65%	2618
R2	2	72
R4	.4	17
C	2	82
I	.07	3
L	30	1217
	100%	4009*

* In addition to sales, 96 appraisals were made.

A final point is that the average total "predicted" equalized value was "off" by 22.8% from what was the 1978 assessed value for the sample. In every case, except for the town of Concord, the "predicted" equalized value was lower than the 1978 assessed value.

[1] This hypothesis can also be extended to explain why personal property has the second lowest percentage error. For personal property the valuation of certified personal is set by the Dept. of Corp. and Taxation. Since this is assumed to be at 100% of value at all times, this number is used in the new assessments. Hence, only non certified personal property is adjusted during revaluation.

In sum, the "predictability" of the data is not good. In the sample of 32 towns, the errors in prediction on the other classes of property offset each other, in part, and were absorbed by the large volume of R1 parcels in these communities. The large errors are understandable given the small sample size, for, say, commercial and industrial property. This leads us to caution all readers of this report that the numbers herein are illustrative and not predictive.

Appendix IV: Methodology and Data for Estimating the Impact of 100% Valuation and Classification

By John Avault and Raymond Torto

In estimating the impact of 100% valuation or classification, the focus of our concern is the redistribution of tax burden and property values by class of property. This analysis is done by assuming that total revenues from the property tax do not change and that all changes in tax burden and property values are due to changes in the share of taxes paid by different classes of property.

In making this analysis, the conclusions are only as good as the data, i.e. of the estimates of equalized value. There is much suspicion as to the predictability of this data and the analysis herein must be seen as illustrative and not predictive.

An analysis of this sort can be presented in two ways. One is to report the "initial impact" of tax redistribution and the other is to report "equilibrium" or "steady state" numbers. In addition because of problems inherent, not only in all the data estimates, but in particular, in the personal property estimates we report results based on two assumptions. One, that personal property numbers are accurate and should be used and two, that they are not accurate and should not be used. Under this latter assumption we make our estimates assuming personal property taxes will not change. This gives us, then, a 2 by 2 matrix of results as shown in Chart I.

Chart I: Presentation of Data:

	Personal Property Shifting	Personal Property held harmless
Initial Impact estimates	A	C
Equilibrium estimates	B	D

From the point of view of residential property, in particular, the severest impact of 100% valuation would be given by box A and the least severe impact would be given by box D. In other words, highest increases in residential tax bills would be demonstrated by results in box A and the least highest by box D under 100% valuation.[1]

Again, from the point of view of residential property, under classification box A would show the most favorable case for residential property and box D the least favorable. In other words, box A would show lower tax bills for residential property, than would box D.

As indicated in the text, the sample has been divided into two sample groupings. A listing of the cities and towns in each grouping--those facing 100% valuation and those with an assessment-to-sales ratio of greater than 90% or in compliance as reported in Sudbury II--is given in Tables A.IV.1 and A.IV.2. Table A.IV.3 lists towns for which adequate data was not available.

[1] Of course, equilibrium estimates are lower because of the assumption of a tax capitalization effect, i.e., as taxes increase, value falls, with a subsequent fall in taxes, etc. In other words, equilibrium analysis assumes a drop in the value of property due to tax shifting.

The MASSTAX Data Base

The data file MASSTAX now contains the following information for each of 351 Massachusetts communities: assessed values, equalized values, and number of taxable parcels broken down into ten property categories:

R1 - one family
R2 - two family homes
R3 - three family homes
R4 - apartment properties
RC - mixed residential & commercial
C - Commercial
I - Industrial
AH - agricultural/horticultural
L - vacant land
Personal property

The figures on assessments and equalized values are based on those reported in the 1978 Equalization Survey of the Massachusetts Department of Corporations and Taxation as revised by the Department for approximately 30 cities and towns following the April hearings. Assessed values are official figures for FY 1978. Current tax rates are generated internally from the data, and are not plugged in independently. The Taxation Department's equalized values were estimated from a survey of property sales and appraisals covering the eighteen month period ending July 1, 1977. In light of the dynamic nature of property values and the survey coverage period, these estimates are seen to center around January 1, 1977 and so they were inflated to approximate July 1, 1978 values. All real property values were assumed to be growing at eight percent per annum with yearly compounding of growth. Accordingly, the survey equalized value estimates were multiplied by 1.122 ($(1.08)^{1.5} = 1.122$) to bring

them up to date. In the special case of Boston base estimates were synthesized from the 1978 Equalization Survey (apartment properties), B.R.A. Research Department preliminary analysis of 1975 sales transactions (1, 2, and 3 family homes), and the unrevised 1976 Equalization Survey (all others). These estimates most appropriately pertain to July 1, 1976 and were therefore inflated for two years of eight percent value growth by multiplying by 1.166 ($(1.08)^2 = 1.166$).

The available data on the numbers of realty parcels are for FY 1976. Although these counts may now be out of date, this affects only the estimates of average tax bills and does not disturb the calculation of aggregate taxes or aggregate and percentage tax changes.

FY 1978 property tax levies were reported in Municipal Financial Data, 1978 Massachusetts Taxpayers' Foundation.

Population and per capita income statistics are derived from the U.S. Department of Commerce, Bureau of the Census: Current Population Reports, series p-25, No. 669, issued May, 1977. The population estimates are for 1975. The 1974 income figures were uniformly multiplied by 1.25 to account for the twenty five percent growth in Massachusetts total personal income between 1974 and 1977 as reported in State Budget Trends 1970-1979; Massachusetts Taxpayers' Foundation 1978.

The data available from Corporations and Taxation does not correspond perfectly to the categories proposed in the Massachusetts Mayors'Association. Therefore, in order to make estimates as to the effects of classification a number of assumptions were necessary. First, we assumed all vacant land

in cities and towns over 25,000 population would be classified as residential and assessed accordingly. For cities and towns under 25,000, it was assumed that all vacant land is assessed as open space. Second, we did not allocate RC property into its respective classes. We felt this would call for too heroic assumptions. Hence, RC's tax burden is not allocated either under estimates of the effects of 100% or classification. Its valuation is used, however, to calculate total valuation. We further assumed that the valuation on RC was evenly divided into R and C and thus applied a ratio of 45% to RC. Our analysis of RC, especially for Boston leads us to be very suspicious of this grouping. More on this will be available in further reports on the data. Third, both A/H and P property is assumed to be valued at 100% under classification.

Anticipating Tax Capitalization and Estimating Equilibrium Taxes

A special problem implicit in property tax equalization is the mutual interdependence of property taxes and values. A property's taxes depend on its value while at the same time the value is influenced by taxes. Our "Equilibrium" calculations represent an attempt to estimate the point at which property values and equalized taxes are properly balanced.

Tax Capitalization Calculation Methods

The process by which property taxes affect property values is called tax capitalization. The basis for this phenomena is to be found in the fact that home owners' total periodic outlay for housing costs is limited by their income and that commercial property investors demand a return on their investment comparable to that yielded by other similar investment opportunities.

The major components of home ownership expenses are: (1) mortgage payments and (2) property taxes. When purchasing a home the buyer must select one that he can afford; that is, the sum of periodic tax and mortgage payments must not exceed the allowable outlay available from his income.

Mortgage terms of 81/2% for a 20 year repayment period have been typical. Constant payment tables show that these terms demand monthly payments of $8.678 for every $1,000 mortgaged. This is $104.13 per year for every $1,000 mortgaged or 10.413% of the mortgaged amount to be paid annually. So every $100 of mortgage amount is equivalent to $10.41 of the mortgage component of annual housing expense.

In our calculation, we have conservatively treated the entire purchase price of a home as mortgaged. We shall see that this treatment is indeed conservative since it implies smaller value changes in response to a given tax change.[1)]

We must now ask what happens if tax bills change. Imagine that a home's taxes increase by $1,000. The owner may be able to meet this added expense by cutting back on other budget items (perhaps home maintenance) or he may decide to sell. If he tries to sell he will encounter prospective buyers who have incomes and housing expense budgets similar to his own. Since the taxes are $1,000 higher, the amount of annual housing budget available for mortgage payments will be $1,000 less. In order to reduce annual mortgage payments by $1,000 the buyer must agree to a purchase price that is $9,615 ($1,000/.104) less than he could have afforded to pay without the tax increase.[2)] The sale price of the house has declined and the housing budget required to own the house has not changed. This is the process embodied in the examples of one, two, and three family homes.

In our estimates, we treat all properties other than one, two, and three family homes as investments purchased for the sake of the income they produce. We assume that a 12% rate of return is expected on the purchase price investment to compensate the buyer for interest that his money could earn elsewhere, property depreciation, and the risk and management burden associated with real estate investment.

1) See Footnote[2)] and accompanying text.

2) If the purchase price is treated as being only 80% mortgaged, then annual mortgage payments would be only 8.32% (80% of 10.4%) of the purchase price. A $1,000 tax increase would then result in a sale price decline of $12,019 ($1,000/.0832).

A property yielding a net annual operating income of $10,000 would therefore be worth $83,333 ($10,000/.12) to an investor-buyer.

Investment property sales value depends on net operating income and net operating income can change due to property tax changes. If an investment property is subject to a $1,000 tax expense hike, its income net of all expenses will drop by $1,000. If this property were now sold to another investor, the new buyer would demand a price $8,333 ($1,000/.12) lower than he would have agreed to without the tax increase.

Equilibrium Estimates

The first step in calculating equilibrium values and taxes is to ascertain the income associated with business properties and the expenses associated with homeowners' properties. Since these concepts are two sides of the same coin, let us use the term Return to refer to both.

Defining: R_i = Return for property type i

V_{i0} = Present equalized value for property type i

T_{i0} = Present property taxes for property type i

C_i = Tax capitalization rate for property type i where C_i = .104 for 1,2, & 3 family homes and C_i = .12 for other realty.

We have $R_i = C_i V_{i0} + T_{i0}$ as our starting point.

To calculate property taxes, we must further define:

t = tax rate

p_i = the assessment to value ratio specified by the classification schedule.

B_i = the amount of assessed value specially exempted from taxation (i.e.,the $5,000 residential parcel exemption).

Now the balance equilibrium market value for each real property type "i" (V_{iE}) is:

$$V_{iE} = \frac{(R_i + t \cdot B_i)}{(c_i + p_i t)}$$

In the above equation ($t \cdot B_i$) is the amount of taxes abated due to the special exemption and ($c_i + p_i t$) is the <u>ad valorem</u> rate by which tax and mortgage payments must be met for homeowner properties or by which profit demands and taxes must be met for income properties.

The assessed value based on this balanced equilibrium market value is: $AV_{iE} = p_i V_{iE} - B_i$. Therefore, the equilibrium property taxes are:

$$T_{iE} = t \cdot AV_{iE} \quad .$$

One special complication that arises from the adjustments of values to tax changes at different tax capitalization rates is the fact that the tax base and therefore the tax rate may change. For this reason it was necessary to estimate the equilibrium tax rate "t" before attempting the above calculations.

To do this we utilized the definition of tax rate as the property tax levy (L) divided by the total effective tax base of classification and capitalization adjusted assessments. Since Personal Property (V_{pp}) was assumed not to capitalize, it enters the formula separately:

$$t = L \Big/ \left(V_{pp} + \sum \left[\left(\frac{(R_i + t B_i)\, p_i}{(C_i + p_i t)} \right) - B_i \right] \right)$$

The correct value of "t" was approximated by successive iterations. The pre-capitalization value of "t" was substituted into the right hand part of the identity to achieve a new estimate of "t". This process was repeated, substituting this time the new estimate of "t" into the right hand part of the equation. The procedure of calculating and re-substituting was continued until successive approximations of the equilibrium tax rate differed by less than a hundredth of a percent.

For the tax simulations in which Personal Property was "held harmless", the above methods were used but with Personalty's assessed value removed from the effective tax base and its tax payments removed from the levy.

TABLE IV.1 CITIES/TOWNS NOT AT 100% VALUATION
AND FOR WHICH DATA WAS AVAILABLE (n= 241)

Cities over 50,000 -21-	Population
Arlington	50,223
Boston	637,986
Brookline	53,150
Cambridge	102,095
Chicopee	58,431
Fall River	100,339
Framingham	65,564
Lawrence	67,515
Lowell	91,177
Lynn	80,240
Malden	55,814
Medford	60,702
New Bedford	100,345
Newton	89,183
Pittsfield	55,299
Quincy	91,487
Somerville	80,596
Springfield	168,785
Waltham	56,757
Weymouth	56,854
Worcester	172,342

	% State	% Sample
Total=2,294,884	40%	47%

Cities 25-50,000 -34-	Population
Andover	26,050
Attleboro	32,650
Belmont	27,660
Beverly	37,382
Billerica	35,831
Chelsea	25,066
Danvers	25,007
Everett	39,713
Fitchburg	39,070
Gloucester	27,209
Haverhill	44,399
Holyoke	46,790
Leominster	35,429
Lexington	32,477
Marlborough	30,249
Melrose	32,213
Methuen	35,516
Milton	27,214
Natick	31,102
Needham	29,936
Northhampton	27,695
Norwood	31,316
Peabody	45,503
Plymouth	26,907
Randolph	29,206
Revere	41,292

Cities 25-50,000 -34-	Population		
Salem	38,545		
Stoughton	25,717		
Taunton	42,148		
Wakefield	26,041		
Watertown	36,075		
Wellesley	26,593		
West Springfield	28,249		
Westfield	32,863		
		% State	% Sample
	Total=1,119,113	19%	23%

Cities/Towns 10-25,000 -61-	
Abington	13,456
Adams	11,270
Agawam	24,305
Amesbury	13,752
Amherst	22,308
Athol	10,849
Bedford	12,314
Bellingham	14,461
Bourne	11,362
Burlington	24,306
Canton	18,114
Clinton	13,015
Dracut	20,287
Easthampton	15,084
Fairhaven	16,005
Falmouth	20,648

Cities/Towns 10-25,000 -61-	Population
Foxborough	14,690
Franklin	18,379
Grafton	10,630
Greenfield	19,087
Hanover	10,533
Hingham	19,544
Holbrook	11,849
Ipswich	11,551
Longmeadow	16,676
Ludlow	18,183
Mansfield	12,447
Marblehead	21,574
Marshfield	19,450
Medfield	10,031
Middleborough	14,146
Milford	23,366
Millbury	12,121
Newburyport	16,341
North Adams	18,424
North Andover	15,864
North Reading	12,125
Northborough	10,563
Northbridge	12,165
Pembroke	12,374
Rockland	17,028
Saugus	24,716

Cities/Towns 10-25,000 -61-	Population
Scituate	17,829
Seekonk	11,351
Sharon	13,592
Shrewsbury	21,965
Sudbury	14,951
Swampscott	14,329
Swansea	15,052
Walpole	18,504
Wareham	15,078
Webster	14,444
Westborough	13,954
Westford	12,951
Weston	11,478
Westport	12,636
Westwood	14,019
Whitman	13,476
Wilmington	17,656
Winchester	22,672
Winthrop	20,359

		% State	% Sample
Total=961,689		17%	20%

Towns less than 10,000 -125-	Population
Acushnet	8,439
Alford	337
Ashby	2,348
Avon	5,315
Ayer	6,718

Towns less than 10,000 -125-	Population
Berkley	2,300
Berlin	2,280
Blackstone	6,486
Bolton	2,427
Boxborough	2,642
Boxford	4,565
Boylston	3,326
Brimfield	2,170
Buckland	1,889
Carver	4,280
Charlton	5,598
Cheshire	3,199
Chilmark	401
Cohasset	7,785
Conway	1,152
Cummington	651
Deerfield	4,255
Dighton	5,076
Dudley	7,857
Dunstable	1,534
East Bridgewater	9,485
East Brookfield	1,980
Edgartown	2,141
Egremont	1,220
Erving	1,308
Essex	2,872

Towns less than 10,000	Population
Freetown	5,417
Gay Head	146
Georgetown	5,912
Gosnold	100
Granby	5,609
Granville	1,183
Great Barrington	7,068
Groton	5,497
Groveland	5,253
Hancock	697
Hanson	8,331
Hardwick	2,172
Harvard	3,514
Harwich	7,786
Hatfield	3,090
Hawley	267
Hopedale	4,014
Hubbardston	1,647
Kingston	6,776
Lakeville	5,118
Lancaster	5,673
Lenox	5,718
Leverett	1,281
Leyden	452
Lincoln	6,374
Lunenburg	8,175

Towns less than 10,000 -125-	Population
Marion	3,764
Mattapoisett	5,376
Maynard	9,901
Medway	8,166
Mendon	2,714
Merrimac	4,202
Middlefield	307
Millis	6,534
Millville	1,744
Montague	8,321
Montgomery	600
Nahant	4,229
Nantucket	5,559
New Braintree	700
New Salem	643
Newbury	4,239
Norfolk	5,960
North Brookfield	4,150
Northfield	2,470
Norton	9,869
Norwell	8,999
Orange	6,445
Otis	898
Paxton	3,706
Peru	464
Petersham	1,099

Towns less than 10,000	Population
Plainfield	366
Plympton	1,679
Princeton	2,072
Provincetown	3,947
Raynham	7,720
Rochester	2,284
Rockport	6,284
Rowley	3,455
Royalston	878
Russell	1,580
Rutland	3,692
Salisbury	4,967
Sandisfield	660
Savoy	467
Sheffield	2,723
Shelburne	1,976
Shirley	4,740
Shutesbury	790
Southborough	6,326
Spencer	9,895
Stockbridge	2,228
Sturbridge	5,522
Sutton	4,969
Tolland	215
Townsend	5,125
Tyngsborough	4,870

Towns less than 10,000 -125-	Population
Tyringham	328
Upton	3,777
Uxbridge	8,528
Ware	8,679
Warren	3,456
Wenham	3,359
West Boylston	6,284
West Brookfield	2,927
West Newbury	2,626
West Stockbridge	1,355
West Tisbury	685
Whately	1,171
Williamstown	8,247
Winchendon	6,855
Windsor	569
Worthington	810

	% State	% Sample
Total= 479,541	8%	10%

Mass. Total=5,789,478

Sample Total=4,855,227

Sample % of State = 84%

TABLE IV.2 CITIES/TOWNS IN MASSACHUSETTS WITH ASSESSMENTS OVER 90% as of 1977 - (103)

Town or City	Population
Acton *	18,209
Ashburnham *	3,834
Ashfield	1,420
Ashland	8,906
Auburn	15,626
Barnstable	26,699
Barre *	3,983
Becket *	1,153
Belchertown	6,361
Bernardston *	1,776
Blandford *	954
Braintree	36,822
Brewster	3,709
Bridgewater *	13,613
Brockton	95,688
Brookfield *	2,175
Carlisle *	3,178
Charlemont	1,050
Chatham	6,027
Chelmsford	31,749
Chester *	1,114
Chesterfield	887
Clarksburg *	1,958
Concord *	17,270
Dalton *	7,504

Town or City	Population
Dartmouth	21,586
Dedham	26,924
Dennis	9,351
Douglas	3,174
Dover *	4,923
Duxbury *	10,601
East Longmeadow *	13,132
Eastham *	3,069
Easton	13,138
Florida *	720
Gardner	19,349
Gill	1,276
Goshen	621
Halifax	4,684
Hamilton *	6,675
Hampden *	4,751
Heath	423
Holden	13,629
Holliston *	12,921
Hopkinton	6,405
Hudson	16,827
Hull *	10,572
Huntington	1,730
Lanesborough	3,237
Lee	6,319
Leicester	8,887
Littleton	6,629
Lynnfield	12,009
Manchester *	5,542

Town or City	Population
Mashpee	2,496
Middleton *	4,032
Monroe	186
Monterey	758
Mount Washington	78
New Ashford	160
New Marlborough *	1,087
North Attleborough	19,120
Oak Bluffs	1,724
Oakham *	846
Orleans *	4,369
Oxford *	10,822
Palmer	11,755
Pepperell	6,745
Phillipston *	962
Plainville *	5,463
Reading	23,696
Rehoboth	7,009
Richmond	1,689
Rowe	313
Sandwich *	6,358
Sherborn	4,116
Somerset	19,205
South Hadley	16,568
Southampton	3,770
Southbridge	16,910
Southwick	7,028
Sterling *	4,901

Town or City	Population
Stoneham	21,564
Stow	4,688
Sunderland *	2,763
Templeton *	6,079
Tewksbury	24,049
Tisbury	2,754
Topsfield	5,913
Truro	1,260
Wales *	1,033
Warwick	582
Washington	486
Wayland	13,282
Wellfleet *	1,973
West Bridgewater	6,429
Westhampton *	946
Westminster *	4,525
Wilbraham *	13,139
Williamsburg *	2,292
Woburn	35,329
Wrentham	7,342
Yarmouth	17,427

Group 916,790 = 15.8%

Total 5,789,478

* Revaluation, effective for FY 1978

Sources: Municipal Financial Data, 1978, Mass Taxpayers Foundation, Inc.

Department of Corporations and Taxation

Table IV. 3: Towns for which adequate Data was not available. (7)

TOWNS	POPULATION
Colrain	1,493
Hadley	3,802
Hinsdale	1,749
Holland	1,347
Monson	1,376
Pelham	1,153
Wendell	631

5. Reports from 1976 Boston Property Sales: A Technical Report

These brief examples of reports prepared from the information management system HMS-SALES illustrate this prototype system's capabilities to support detailed examination of real estate sub-markets. Included are:

1976 Summary showing the number and percent distribution of real estate conveyances by type of property and type of conveyance. Following the report is a demonstration of how the report was prepared.

1976 Conveyances to HUD or VA is a list of individual transactions followed by a demonstration of how the report was prepared.

1976 Conveyances to Public Authorities is a list of individual transactions.

CITY OF BOSTON PROPERTY SALES 80/06/27 16.07

1976 SUMMARY

WARD 1

1 WARD OF SALE

275 PROPERTY SALE

PROPERTY CLASS	#	%	
	31	11.3	ONE FAMILY
	57	20.7	TWO FAMILY
	109	39.6	THREE FAMILY
	12	4.4	APARTMENTS (4+)
	13	4.7	MIXED RESIDENTIAL/COMM.
	26	9.5	COMMERICAL
	10	3.6	INDUSTRIAL
	14	5.1	LAND
	3	1.1	UNKNOWN

TYPE OF SALE	#	%	
	194	70.5	PRIVATE
	29	10.5	PRIVATE - PRICE PROBLEM
	5	1.8	PRIVATE - CITY
	4	1.5	PRIVATE - AUTHORITY
	3	1.1	PRIVATE - BANK
	1	0.4	PRIVATE - INSTITUTIONAL
	7	2.5	CONVENIENCE SALE
	21	7.6	FAMILY SALE
	7	2.5	CITY - PRIVATE
	1	0.4	AUTHORITY - PRIVATE
	3	1.1	BANK - PRIVATE

TOTAL ASSESSED VALUE	1589160	5778.7	100	107000
TOTAL SALES PRICE	5383093	19574.8	0	265000

CITY OF BOSTON PROPERTY SALES 80/06/27 16.10

1976 SUMMARY

WARD 2

1 WARD OF SALE

89 PROPERTY SALE

PROPERTY CLASS	#	%	
	32	36.0	ONE FAMILY
	15	16.9	TWO FAMILY
	20	22.5	THREE FAMILY
	6	6.7	APARTMENTS (4+)
	6	6.7	CONDOMINIUM
	6	6.7	MIXED RESIDENTIAL/COMM.
	1	1.1	COMMERICAL
	1	1.1	INDUSTRIAL
	2	2.2	LAND

TYPE OF SALE	#	%	
	65	73.0	PRIVATE
	10	11.2	PRIVATE - PRICE PROBLEM
	4	4.5	CONVENIENCE SALE
	6	6.7	FAMILY SALE
	1	1.1	CITY - PRIVATE
	1	1.1	AUTHORITY - PRIVATE
	2	2.2	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	550500	6185.3	600	58000
TOTAL SALES PRICE	2237634	25141.9	0	105000

1976 SUMMARY

WARD 3

1 WARD OF SALE

153 PROPERTY SALE

PROPERTY CLASS	#	%	
	11	7.2	ONE FAMILY
	6	3.9	TWO FAMILY
	9	5.9	THREE FAMILY
	32	20.9	APARTMENTS (4+)
	40	26.1	CONDOMINIUM
	20	13.1	MIXED RESIDENTIAL/COMM.
	22	14.4	COMMERICAL
	6	3.9	INDUSTRIAL
	7	4.6	LAND

TYPE OF SALE	#	%	
	116	75.8	PRIVATE
	10	6.5	PRIVATE - PRICE PROBLEM
	2	1.3	PRIVATE - AUTHORITY
	3	2.0	PRIVATE - BANK
	5	3.3	CONVENIENCE SALE
	8	5.2	FAMILY SALE
	2	1.3	CITY - PRIVATE
	2	1.3	AUTHORITY - PRIVATE
	5	3.3	BANK - PRIVATE

TOTAL ASSESSED VALUE	4980850	32554.5	0	494000
TOTAL SALES PRICE	48641123	317915.8	0	36549000

1976 SUMMARY

WARD 4

1 WARD OF SALE

118 PROPERTY SALE

PROPERTY CLASS	#	%	
	26	22.0	ONE FAMILY
	3	2.5	TWO FAMILY
	11	9.3	THREE FAMILY
	63	53.4	APARTMENTS (4+)
	5	4.2	CONDOMINIUM
	2	1.7	MIXED RESIDENTIAL/COMM.
	7	5.9	COMMERICAL
	1	0.8	INDUSTRIAL

TYPE OF SALE	#	%	
	83	70.3	PRIVATE
	11	9.3	PRIVATE - PRICE PROBLEM
	1	0.8	PRIVATE - HUD/VA
	3	2.5	PRIVATE - BANK
	5	4.2	CONVENIENCE SALE
	4	3.4	FAMILY SALE
	2	1.7	CITY - PRIVATE
	3	2.5	AUTHORITY - PRIVATE
	6	5.1	BANK - PRIVATE

TOTAL ASSESSED VALUE	3193547	27063.9	2500	745000
TOTAL SALES PRICE	10288858	87193.7	1	2000000

CITY OF BOSTON PROPERTY SALES 80/06/27 16.19

1976 SUMMARY

WARD 5

1 WARD OF SALE

472 PROPERTY SALE

PROPERTY CLASS	#	%	
	49	10.4	ONE FAMILY
	8	1.7	TWO FAMILY
	9	1.9	THREE FAMILY
	109	23.1	APARTMENTS (4+)
	252	53.4	CONDOMINIUM
	18	3.8	MIXED RESIDENTIAL/COMM.
	17	3.6	COMMERICAL
	9	1.9	INDUSTRIAL
	1	0.2	UNKNOWN

TYPE OF SALE	#	%	
	388	82.2	PRIVATE
	28	5.9	PRIVATE - PRICE PROBLEM
	9	1.9	PRIVATE - BANK
	4	0.8	PRIVATE - INSTITUTIONAL
	18	3.8	CONVENIENCE SALE
	5	1.1	FAMILY SALE
	2	0.4	CITY - PRIVATE
	1	0.2	BANK - INSTITUTIONAL
	8	1.7	BANK - PRIVATE
	2	0.4	INSTITUTIONAL-INSTITUTION
	1	0.2	INSTITUTIONAL - BANK
	6	1.3	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	16469901	34893.8	2100	6250000
TOTAL SALES PRICE	28239944	59830.3	0	650000

CITY OF BOSTON PROPERTY SALES 80/06/27 16.23

1976 SUMMARY

WARD 6

1 WARD OF SALE

165 PROPERTY SALE

PROPERTY CLASS	#	%	
	31	18.8	ONE FAMILY
	27	16.4	TWO FAMILY
	42	25.5	THREE FAMILY
	5	3.0	APARTMENTS (4+)
	8	4.8	MIXED RESIDENTIAL/COMM.
	14	8.5	COMMERICAL
	5	3.0	INDUSTRIAL
	33	20.0	LAND

TYPE OF SALE	#	%	
	93	56.4	PRIVATE
	15	9.1	PRIVATE - PRICE PROBLEM
	7	4.2	PRIVATE - BANK
	8	4.8	CONVENIENCE SALE
	9	5.5	FAMILY SALE
	30	18.2	CITY - PRIVATE
	3	1.8	BANK - PRIVATE

TOTAL ASSESSED VALUE	1166800	7071.5	200	130000
TOTAL SALES PRICE	2833679	17173.8	1	300000

CITY OF BOSTON PROPERTY SALES 80/06/27 16.25

1976 SUMMARY

WARD 7

1 WARD OF SALE

176 PROPERTY SALE

PROPERTY CLASS	#	%	
	38	21.6	ONE FAMILY
	30	17.0	TWO FAMILY
	66	37.5	THREE FAMILY
	6	3.4	APARTMENTS (4+)
	10	5.7	MIXED RESIDENTIAL/COMM.
	3	1.7	COMMERICAL
	4	2.3	INDUSTRIAL
	19	10.8	LAND

TYPE OF SALE	#	%	
	102	58.0	PRIVATE
	20	11.4	PRIVATE - PRICE PROBLEM
	1	0.6	PRIVATE - HUD/VA
	4	2.3	PRIVATE - BANK
	3	1.7	CONVENIENCE SALE
	14	8.0	FAMILY SALE
	19	10.8	CITY - PRIVATE
	2	1.1	HUD/VA - PRIVATE
	11	6.3	BANK - PRIVATE

TOTAL ASSESSED VALUE	1084100	6159.6	200	83000
TOTAL SALES PRICE	2666573	15150.9	1	255000

CITY OF BOSTON PROPERTY SALES 80/06/30 15.39

1976 SUMMARY

WARD 8

1 WARD OF SALE

115 PROPERTY SALE

PROPERTY CLASS	#	%	
	15	13.0	ONE FAMILY
	17	14.8	TWO FAMILY
	30	26.1	THREE FAMILY
	10	8.7	APARTMENTS (4+)
	2	1.7	MIXED RESIDENTIAL/COMM.
	11	9.6	COMMERICAL
	4	3.5	INDUSTRIAL
	25	21.7	LAND
	1	0.9	UNKNOWN

TYPE OF SALE	#	%	
	69	60.0	PRIVATE
	15	13.0	PRIVATE - PRICE PROBLEM
	1	0.9	FAMILY SALE
	27	23.5	CITY - PRIVATE
	1	0.9	AUTHORITY - PRIVATE
	1	0.9	HUD/VA - PRIVATE
	1	0.9	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	851100	7400.8	200	183000
TOTAL SALES PRICE	1382531	12022.0	1	147500

CITY OF BOSTON PROPERTY SALES 80/06/30 15.45

1976 SUMMARY

WARD 9

1 WARD OF SALE

90 PROPERTY SALE

PROPERTY CLASS	#	%	
	14	15.6	ONE FAMILY
	12	13.3	TWO FAMILY
	10	11.1	THREE FAMILY
	25	27.8	APARTMENTS (4+)
	5	5.6	MIXED RESIDENTIAL/COMM.
	11	12.2	COMMERICAL
	4	4.4	INDUSTRIAL
	8	8.9	LAND
	1	1.1	UNKNOWN

TYPE OF SALE	#	%	
	32	35.6	PRIVATE
	4	4.4	PRIVATE - PRICE PROBLEM
	7	7.8	PRIVATE - AUTHORITY
	1	1.1	PRIVATE - HUD/VA
	3	3.3	PRIVATE - BANK
	2	2.2	CONVENIENCE SALE
	1	1.1	FAMILY SALE
	1	1.1	CITY - AUTHORITY
	1	1.1	CITY - INSTITUTIONAL
	31	34.4	CITY - PRIVATE
	3	3.3	AUTHORITY - PRIVATE
	1	1.1	BANK - HUD/VA
	3	3.3	BANK - PRIVATE

TOTAL ASSESSED VALUE	818602	9095.5	400	80000
TOTAL SALES PRICE	3703520	41150.2	99	2000000

CITY OF BOSTON PROPERTY SALES 80/06/30 15.49

1976 SUMMARY

WARD 10

1 WARD OF SALE

117 PROPERTY SALE

PROPERTY CLASS	#	%	
	16	13.7	ONE FAMILY
	26	22.2	TWO FAMILY
	47	40.2	THREE FAMILY
	9	7.7	APARTMENTS (4+)
	4	3.4	MIXED RESIDENTIAL/COMM.
	5	4.3	COMMERICAL
	1	0.9	INDUSTRIAL
	9	7.7	LAND

TYPE OF SALE	#	%	
	66	56.4	PRIVATE
	16	13.7	PRIVATE - PRICE PROBLEM
	4	3.4	PRIVATE - HUD/VA
	6	5.1	PRIVATE - BANK
	3	2.6	CONVENIENCE SALE
	8	6.8	FAMILY SALE
	13	11.1	CITY - PRIVATE
	1	0.9	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	737700	6305.1	200	35000
TOTAL SALES PRICE	1443239	12335.3	1	78076

CITY OF BOSTON PROPERTY SALES 80/06/30 15.52

1976 SUMMARY

WARD 11

1 WARD OF SALE

127 PROPERTY SALE

PROPERTY CLASS	#	%	
	18	14.2	ONE FAMILY
	24	18.9	TWO FAMILY
	39	30.7	THREE FAMILY
	16	12.6	APARTMENTS (4+)
	1	0.8	CONDOMINIUM
	2	1.6	MIXED RESIDENTIAL/COMM.
	2	1.6	COMMERICAL
	3	2.4	INDUSTRIAL
	21	16.5	LAND
	1	0.8	UNKNOWN

TYPE OF SALE	#	%	
	66	52.0	PRIVATE
	12	9.4	PRIVATE - PRICE PROBLEM
	1	0.8	PRIVATE - AUTHORITY
	2	1.6	PRIVATE - HUD/VA
	4	3.1	PRIVATE - BANK
	2	1.6	PRIVATE - INSTITUTIONAL
	1	0.8	CONVENIENCE SALE
	2	1.6	FAMILY SALE
	28	22.0	CITY - PRIVATE
	2	1.6	HUD/VA - HUD/VA
	4	3.1	HUD/VA - PRIVATE
	1	0.8	BANK - HUD/VA
	1	0.8	BANK - PRIVATE
	1	0.8	INSTITUTIONAL-INSTITUTION

TOTAL ASSESSED VALUE	702700	5533.0	500	31900
TOTAL SALES PRICE	5774502	45468.5	99	2500000

CITY OF BOSTON PROPERTY SALES 80/06/30 15.55

1976 SUMMARY

WARD 12

1 WARD OF SALE

90 PROPERTY SALE

PROPERTY CLASS	#	%	
	12	13.3	ONE FAMILY
	20	22.2	TWO FAMILY
	23	25.6	THREE FAMILY
	19	21.1	APARTMENTS (4+)
	5	5.6	COMMERICAL
	5	5.6	INDUSTRIAL
	3	3.3	LAND
	3	3.3	UNKNOWN

TYPE OF SALE	#	%	
	34	37.8	PRIVATE
	3	3.3	PRIVATE - PRICE PROBLEM
	8	8.9	PRIVATE - HUD/VA
	4	4.4	PRIVATE - BANK
	2	2.2	FAMILY SALE
	2	2.2	CITY - INSTITUTIONAL
	22	24.4	CITY - PRIVATE
	1	1.1	HUD/VA - INSTITUTIONAL
	10	11.1	HUD/VA - PRIVATE
	1	1.1	BANK - HUD/VA
	1	1.1	BANK - PRIVATE
	1	1.1	INSTITUTIONAL - HUD/VA
	1	1.1	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	2355500	26172.2	300	1425000

CITY OF BOSTON PROPERTY SALES 80/06/30 15.58

1976 SUMMARY

WARD 13

1 WARD OF SALE

139 PROPERTY SALE

PROPERTY CLASS	#	%	
	34	24.5	ONE FAMILY
	21	15.1	TWO FAMILY
	47	33.8	THREE FAMILY
	11	7.9	APARTMENTS (4+)
	1	0.7	MIXED RESIDENTIAL/COMM.
	2	1.4	COMMERICAL
	2	1.4	INDUSTRIAL
	14	10.1	LAND
	7	5.0	UNKNOWN

TYPE OF SALE	#	%	
	76	54.7	PRIVATE
	22	15.8	PRIVATE - PRICE PROBLEM
	4	2.9	PRIVATE - HUD/VA
	3	2.2	PRIVATE - BANK
	1	0.7	CONVENIENCE SALE
	3	2.2	FAMILY SALE
	18	12.9	CITY - PRIVATE
	7	5.0	HUD/VA - PRIVATE
	3	2.2	BANK - HUD/VA
	2	1.4	BANK - PRIVATE

TOTAL ASSESSED VALUE	902400	6492.0	300	140000
TOTAL SALES PRICE	3454439	24852.0	0	2000000

CITY OF BOSTON PROPERTY SALES 80/06/30 16.00

1976 SUMMARY

WARD 14

1 WARD OF SALE

294 PROPERTY SALE

PROPERTY CLASS	#	%	
	45	15.3	ONE FAMILY
	69	23.5	TWO FAMILY
	124	42.2	THREE FAMILY
	17	5.8	APARTMENTS (4+)
	2	0.7	MIXED RESIDENTIAL/COMM.
	9	3.1	COMMERICAL
	7	2.4	INDUSTRIAL
	12	4.1	LAND
	9	3.1	UNKNOWN

TYPE OF SALE	#	%	
	85	28.9	PRIVATE
	26	8.8	PRIVATE - PRICE PROBLEM
	44	15.0	PRIVATE - HUD/VA
	21	7.1	PRIVATE - BANK
	3	1.0	PRIVATE - INSTITUTIONAL
	3	1.0	CONVENIENCE SALE
	14	4.8	FAMILY SALE
	2	0.7	CITY - INSTITUTIONAL
	20	6.8	CITY - PRIVATE
	1	0.3	AUTHORITY - PRIVATE
	70	23.8	HUD/VA - PRIVATE
	3	1.0	BANK - HUD/VA
	1	0.3	BANK - PRIVATE
	1	0.3	INSTITUTIONAL - HUD/VA

TOTAL ASSESSED VALUE	1829000	6221.0	700	36000
TOTAL SALES PRICE	2210472	7518.6	0	84000

CITY OF BOSTON PROPERTY SALES 80/06/30 16.02

1976 SUMMARY

WARD 15

1 WARD OF SALE

217 PROPERTY SALE

PROPERTY CLASS	#	%	
	34	15.7	ONE FAMILY
	53	24.4	TWO FAMILY
	109	50.2	THREE FAMILY
	4	1.8	APARTMENTS (4+)
	2	0.9	MIXED RESIDENTIAL/COMM.
	2	0.9	COMMERICAL
	1	0.5	INDUSTRIAL
	7	3.2	LAND
	5	2.3	UNKNOWN

TYPE OF SALE	#	%	
	129	59.4	PRIVATE
	19	8.8	PRIVATE - PRICE PROBLEM
	6	2.8	PRIVATE - HUD/VA
	11	5.1	PRIVATE - BANK
	1	0.5	PRIVATE - INSTITUTIONAL
	1	0.5	CONVENIENCE SALE
	10	4.6	FAMILY SALE
	6	2.8	CITY - PRIVATE
	1	0.5	HUD/VA - INSTITUTIONAL
	20	9.2	HUD/VA - PRIVATE
	5	2.3	BANK - HUD/VA
	7	3.2	BANK - PRIVATE
	1	0.5	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	1262600	5818.4	400	241
TOTAL SALES PRICE	2276086	10488.8	1	650

CITY OF BOSTON PROPERTY SALES 80/07/01 08.54

1976 SUMMARY

WARD 16

1 WARD OF SALE

103 PROPERTY SALE

PROPERTY CLASS	#	%	
	45	43.7	ONE FAMILY
	20	19.4	TWO FAMILY
	26	25.2	THREE FAMILY
	6	5.8	APARTMENTS (4+)
	2	1.9	INDUSTRIAL
	4	3.9	LAND

TYPE OF SALE	#	%	
	78	75.7	PRIVATE
	3	2.9	PRIVATE - PRICE PROBLEM
	4	3.9	PRIVATE - HUD/VA
	3	2.9	PRIVATE - BANK
	1	1.0	CONVENIENCE SALE
	5	4.9	FAMILY SALE
	3	2.9	CITY - PRIVATE
	1	1.0	HUD/VA - PRIVATE
	1	1.0	BANK - HUD/VA
	4	3.9	BANK - PRIVATE

TOTAL ASSESSED VALUE	787600	7646.6	500	o750
TOTAL SALES PRICE	2380065	23107.4	1	20545

CITY OF BOSTON PROPERTY SALES 80/07/01 08.58

1976 SUMMARY

WARD 17

1 WARD OF SALE

121 PROPERTY SALE

PROPERTY CLASS	#	%
	34	28.1 ONE FAMILY
	44	36.4 TWO FAMILY
	33	27.3 THREE FAMILY
	4	3.3 APARTMENTS (4+)
	3	2.5 COMMERICAL
	3	2.5 LAND

TYPE OF SALE	#	%
	74	61.2 PRIVATE
	17	14.0 PRIVATE - PRICE PROBLEM
	1	0.8 PRIVATE - HUD/VA
	10	8.3 PRIVATE - BANK
	4	3.3 CONVENIENCE SALE
	3	2.5 FAMILY SALE
	1	0.8 CITY - PRIVATE
	5	4.1 HUD/VA - PRIVATE
	4	3.3 BANK - HUD/VA
	2	1.7 BANK - PRIVATE

TOTAL ASSESSED VALUE	821162	6786.4	300	33000
TOTAL SALES PRICE	2097817	17337.3	1	75000

CITY OF BOSTON PROPERTY SALES 80/07/01 09.06

1976 SUMMARY

WARD 18

1 WARD OF SALE

555 PROPERTY SALE

PROPERTY CLASS	#	%
	329	59.3 ONE FAMILY
	141	25.4 TWO FAMILY
	41	7.4 THREE FAMILY
	13	2.3 APARTMENTS (4+)
	11	2.0 COMMERICAL
	6	1.1 INDUSTRIAL
	12	2.2 LAND
	2	0.4 UNKNOWN

TYPE OF SALE	#	%
	464	83.6 PRIVATE
	20	3.6 PRIVATE - PRICE PROBLEM
	1	0.2 PRIVATE - HUD/VA
	15	2.7 PRIVATE - BANK
	1	0.2 PRIVATE - INSTITUTIONAL
	3	0.5 CONVENIENCE SALE
	11	2.0 FAMILY SALE
	6	1.1 CITY - PRIVATE
	11	2.0 HUD/VA - PRIVATE
	9	1.6 BANK - HUD/VA
	10	1.8 BANK - PRIVATE
	4	0.7 STATE - PRIVATE

TOTAL ASSESSED VALUE	4969200	8953.5	300	500000
TOTAL SALES PRICE	17018458	30663.8	0	200040

CITY OF BOSTON PROPERTY SALES 80/07/01 09.08

1976 SUMMARY

WARD 19

1 WARD OF SALE

244 PROPERTY SALE

PROPERTY CLASS	#	%	
	100	41.0	ONE FAMILY
	59	24.2	TWO FAMILY
	43	17.6	THREE FAMILY
	18	7.4	APARTMENTS (4+)
	4	1.6	CONDOMINIUM
	8	3.3	COMMERICAL
	8	3.3	INDUSTRIAL
	3	1.2	LAND
	1	0.4	UNKNOWN

TYPE OF SALE	#	%	
	203	83.2	PRIVATE
	1	0.4	PRIVATE - NUTS
	13	5.3	PRIVATE - PRICE PROBLEM
	3	1.2	PRIVATE - BANK
	2	0.8	PRIVATE - INSTITUTIONAL
	1	0.4	CONVENIENCE SALE
	14	5.7	FAMILY SALE
	3	1.2	CITY - PRIVATE
	2	0.8	HUD/VA - PRIVATE
	2	0.8	STATE - PRIVATE

TOTAL ASSESSED VALUE	2203100	9029.0	200	275000
TOTAL SALES PRICE	7239791	29671.2	1	51o000

CITY OF BOSTON PROPERTY SALES 80/07/01 09.36

1976 SUMMARY

WARD 20

1 WARD OF SALE

365 PROPERTY SALE

PROPERTY CLASS	#	%	
	265	72.6	ONE FAMILY
	61	16.7	TWO FAMILY
	15	4.1	THREE FAMILY
	2	0.5	APARTMENTS (4+)
	3	0.8	CONDOMINIUM
	1	0.3	MIXED RESIDENTIAL/COMM.
	6	1.6	COMMERICAL
	6	1.6	INDUSTRIAL
	3	0.8	LAND
	3	0.8	UNKNOWN

TYPE OF SALE	#	%	
	333	91.2	PRIVATE
	6	1.6	PRIVATE - PRICE PROBLEM
	5	1.4	PRIVATE - BANK
	1	0.3	CONVENIENCE SALE
	14	3.8	FAMILY SALE
	3	0.8	CITY - PRIVATE
	1	0.3	HUD/VA - PRIVATE
	1	0.3	BANK - HUD/VA
	1	0.3	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	2727900	7473.6	100	200000
TOTAL SALES PRICE	11601920	31786.0	300	325000

CITY OF BOSTON PROPERTY SALES 80/07/01 09.45

1976 SUMMARY

WARD 21

1 WARD OF SALE

102 PROPERTY SALE

PROPERTY CLASS	#	%	
	16	15.7	ONE FAMILY
	23	22.5	TWO FAMILY
	18	17.6	THREE FAMILY
	29	28.4	APARTMENTS (4+)
	2	2.0	MIXED RESIDENTIAL/COMM.
	7	6.9	COMMERICAL
	5	4.9	INDUSTRIAL
	2	2.0	LAND

TYPE OF SALE	#	%	
	72	70.6	PRIVATE
	11	10.8	PRIVATE - PRICE PROBLEM
	2	2.0	PRIVATE - BANK
	1	1.0	PRIVATE - INSTITUTIONAL
	1	1.0	CONVENIENCE SALE
	12	11.8	FAMILY SALE
	2	2.0	BANK - PRIVATE
	1	1.0	INSTITUTIONAL - PRIVATE

TOTAL ASSESSED VALUE	2985700	29271.5	300	267000
TOTAL SALES PRICE	7457241	73110.2	0	820813

CITY OF BOSTON PROPERTY SALES 80/07/01 09.51

1976 SUMMARY

WARD 22

1 WARD OF SALE

179 PROPERTY SALE

PROPERTY CLASS	#	%	
	49	27.4	ONE FAMILY
	74	41.3	TWO FAMILY
	25	14.0	THREE FAMILY
	15	8.4	APARTMENTS (4+)
	1	0.6	MIXED RESIDENTIAL/COMM.
	4	2.2	COMMERICAL
	6	3.4	INDUSTRIAL
	5	2.8	LAND

TYPE OF SALE	#	%	
	160	89.4	PRIVATE
	6	3.4	PRIVATE - PRICE PROBLEM
	1	0.6	PRIVATE - BANK
	1	0.6	CONVENIENCE SALE
	10	5.6	FAMILY SALE
	1	0.6	BANK - PRIVATE

TOTAL ASSESSED VALUE	1858600	10383.2	500	140000
TOTAL SALES PRICE	7874986	43994.3	0	1215000

STEPS TAKEN TO PRODUCE A WARD BY SPECIFIC YEAR SUMMARY REPORT

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CITY OF BOSTON PROPERTY SALES          80/07/01          08.48

ENTER ? FOR HELP   ?? FOR MORE HELP   AND * TO ABORT

SALES READY
ENTER COMMAND: RF

    1 YEAR READY
ENTER COMMAND: RS

   45 WARD READY
ENTER COMMAND: BG
BUILDING REPORT GENERATOR FOR WARD
ENTER TITLE: 1976 SUMMARY
ENTER LITERAL: ' !'
ENTER WARD ELEMENT TO LIST: WARD
ENTER LITERAL:
ENTER WARD ELEMENT TO LIST:
ENTER WARD ELEMENT TO SUM:
ENTER WARD SUBFILE TO REPORT: SALE

   45 WARD READY
ENTER COMMAND: BM

BUILD WARD MASK 01

ENTER WARD ELEMENT TO FIND: WARD
ENTER RELATION: EQ
ENTER WARD: 16
ENTER WARD ELEMENT TO FIND:
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 02 AND -AND- TO MASK 01?   Y/N: N
BUILD MASK 02 AND -OR- TO MASK 01?   Y/N: N
BUILD SUBFILE MASKS FOR WARD?   Y/N: Y
ENTER WARD SUBFILE TO MASK: SALE
ENTER WARD SUBFILE TO MASK:

   45 WARD READY
ENTER COMMAND: RS

 7801 SALE READY
ENTER COMMAND: BG
BUILDING REPORT GENERATOR FOR SALE
ENTER TITLE:
ENTER LITERAL:
ENTER SALE ELEMENT TO LIST:
ENTER SALE ELEMENT TO SUM: CLASS
ENTER SALE ELEMENT TO SUM: TYPE
ENTER SALE ELEMENT TO SUM: ASVAL
ENTER SALE ELEMENT TO SUM: PRICE
ENTER SALE ELEMENT TO SUM:

 7801 SALE READY
ENTER COMMAND: *

   45 WARD READY
ENTER COMMAND: LR
ON TERMINAL?   Y/N: Y
```

ALL RESIDENTIAL PROPERTIES "SOLD" TO HUD/VA CITYWIDE BY WARD, 1976

WARD 1

WARD 2

WARD 3

WARD 4

8393
ADDRESS: 595 WORCESTER
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 54800
SELLER: URBAN HOUS ASSOC
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 2000000

WARD 5

WARD 6

WARD 7

9153
ADDRESS: 7 ELDEN ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 6800
SELLER: LARKINS P.J.
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 12000

WARD 8

WARD 9

9383
ADDRESS: 2 GREENWICH CT.
CLASS: ONE FAMILY
ASSESSED VALUE: 800
SELLER: GOVT.NATL.MTG.ASSO
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 11589

9434
ADDRESS: 83 W SPRINGFIELD
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 39500
SELLER: URBAN HOUSING
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 2000000

WARD 10

9484
ADDRESS: 49-51 DAY ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 6100
SELLER: MARRIER R.S. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 16500

9513
ADDRESS: 737 PARKER
CLASS: THREE FAMILY
ASSESSED VALUE: 5800
SELLER: S SANGHETTI
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 11180

9530
ADDRESS: 43 ROUND HILL
CLASS: TWO FAMILY
ASSESSED VALUE: 3300
SELLER: C F CAVASSA
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 9500

9557
ADDRESS: 73 WALDEN
CLASS: TWO FAMILY
ASSESSED VALUE: 3900
SELLER: J M MONROE
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 7800

WARD 11

9602
ADDRESS: 19 CHILCOTT P
CLASS: THREE FAMILY
ASSESSED VALUE: 5500
SELLER: M MACLELLAN
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

9605
ADDRESS: 9 COPLEY
CLASS: ONE FAMILY
ASSESSED VALUE: 5500
SELLER: F OBRIEN
BUYER: H.U.D.
TYPE: PRIVATE - HUD/VA
PRICE: 19500

9663
ADDRESS: 955 COLUMBUS AVE
CLASS: LAND
ASSESSED VALUE: 1400
SELLER: HUD
BUYER: SEC OF HOUSING
TYPE: HUD/VA - HUD/VA
PRICE: 2500000

9664
ADDRESS: 25 ROSEMARY ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 5200
SELLER: BOSTON FED. SAVING
BUYER: ROUNDSBUSH, R.L.
TYPE: BANK - HUD/VA
PRICE: 9581

9674
ADDRESS: SWS MARCELLA
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 3700
SELLER: HUD
BUYER: SEC OF HOUSING
TYPE: HUD/VA - HUD/VA
PRICE: 2000000

WARD 12

9707
ADDRESS: 60 BRUNSWICK 58
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 27000
SELLER: AFRICAN ORTHODOX
BUYER: HOUS. & URBAN DEV.
TYPE: INSTITUTIONAL - HUD/VA
PRICE: 1350000

9708
ADDRESS: 67 CHENEY ST.
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 19000
SELLER: SCHUSTER G.
BUYER: HOUS. & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 1

9721
ADDRESS: 107 ELM HILL AVE. 109
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 23100
SELLER: PARKVIEW ARMS INC.
BUYER: HOUS. & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 1

9734
ADDRESS: 109 HOMESTEAD ST. 115
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 65400
SELLER: WENTWORTH ARMS INC
BUYER: HOUS. & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 1

9735
ADDRESS: 120 HOWLAND
CLASS: THREE FAMILY
ASSESSED VALUE: 8000
SELLER: HOWARD BASKIN
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 500

9739
ADDRESS: 6 INTERVALE ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 5500
SELLER: PAIGE M. ETAL
BUYER: HOUS. & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 11497

9740
ADDRESS: 55-73 KENSINGTON PK. (2-7
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 1425000
SELLER: WARREN GARDENS INC
BUYER: HOUS & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 4100000

9741
ADDRESS: 5 MAYBURY
CLASS: THREE FAMILY
ASSESSED VALUE: 5300
SELLER: BOS FED SAV LOAN
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 12500

9753
ADDRESS: 24 SANOMA 18
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 27200
SELLER: SCHUSTER G.
BUYER: HOUS. & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 1

9767
ADDRESS: 39-65 WALNUT AVE.
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 137000
SELLER: WARREN GARDENS INC
BUYER: HOUS & URBAN DEV.
TYPE: PRIVATE - HUD/VA
PRICE: 4100000

WARD 11

9799
ADDRESS: 7 BROOKFORD ST
CLASS: TWO FAMILY
ASSESSED VALUE: 3400
SELLER: LILIE DODD
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

9813
ADDRESS: 53 DORMER AVE
CLASS: UNKNOWN
ASSESSED VALUE: 1000
SELLER: GROVE HALL SAV BK
BUYER: VETERANS ADMINS
TYPE: BANK - HUD/VA
PRICE: 4365

9830
ADDRESS: 62 HARTFORD
CLASS: ONE FAMILY
ASSESSED VALUE: 3000
SELLER: SHAWMUT BANK BOS
BUYER: VETS ADMIN
TYPE: BANK - HUD/VA
PRICE: 11109

9837
ADDRESS: 1 HARTFORD TERR.
CLASS: ONE FAMILY
ASSESSED VALUE: 4200
SELLER: PAGAN S. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 5000

9852
ADDRESS: 54 MAGNOLIA ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: SUFFOLK FRANK BK
BUYER: SEC OF HOUSING
TYPE: BANK - HUD/VA
PRICE: 14700

9867
ADDRESS: 18 REVERELL ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: OWENS J. ETAL
BUYER: ADMIN. OF VET. AFF
TYPE: PRIVATE - HUD/VA
PRICE: 10400

9923
ADDRESS: 41 WOODFORD ST
CLASS: APARTMENTS (4-6)
ASSESSED VALUE: 19000
SELLER: BURTON ASSOC
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 2000000

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9933
ADDRESS: 6 ARBUTUS ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6800
SELLER: HERMAN DELOACH
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 20800

9936
ADDRESS: 21 ASTORIA ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 7500
SELLER: BALLARD EARL C.
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 21114

9964
ADDRESS: 29 CALDER ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6600
SELLER: SYLVIA GRAVES
BUYER: VETERANS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 2100

9970
ADDRESS: 247 CALLENDER ST
CLASS: TWO FAMILY
ASSESSED VALUE: 6200
SELLER: JOHN BANKS
BUYER: VETERANS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 8700

9977
ADDRESS: 5 CRESTON PK
CLASS: THREE FAMILY
ASSESSED VALUE: 5000
SELLER: JAMES LANE
BUYER: VETS ADMINIST
TYPE: PRIVATE - HUD/VA
PRICE: 1300

9981
ADDRESS: 14 DEERING RD
CLASS: THREE FAMILY
ASSESSED VALUE: 7200
SELLER: WILLIE FOXWORTH
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 15635

9984
ADDRESS: 52 DEERING RD.
CLASS: THREE FAMILY
ASSESSED VALUE: 7200
SELLER: RUDOLPH JOHN ETAL
BUYER: ADMIN OF VET AFFAS
TYPE: PRIVATE - HUD/VA
PRICE: 11300

9986
ADDRESS: 95 DERRING RD.
CLASS: THREE FAMILY
ASSESSED VALUE: 7400
SELLER: HINKSON DOLORES
BUYER: ADMIN OF VET AFFAS
TYPE: PRIVATE - HUD/VA
PRICE: 11900

9989
ADDRESS: 103 DEVON ST
CLASS: TWO FAMILY
ASSESSED VALUE: 5500
SELLER: LC BROOKS
BUYER: VETS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 5300

9990
ADDRESS: 132 DEVON ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: ROBERT SANDERS
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

9994
ADDRESS: 39 ELDON ST
CLASS: TWO FAMILY
ASSESSED VALUE: 3400
SELLER: WOODROW HICKS
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 11541

10021
ADDRESS: 17 GILMER ST.
CLASS: ONE FAMILY
ASSESSED VALUE: 800
SELLER: ROBERTSON J. ETAL
BUYER: ADMIN OF VET AFFAS
TYPE: PRIVATE - HUD/VA
PRICE: 14019

10022
ADDRESS: 18 GLEASON ST.
CLASS: ONE FAMILY
ASSESSED VALUE: 5400
SELLER: BURROUGHS W. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 13089

10053
ADDRESS: 36 HARWOOD ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6300
SELLER: WILMAE MORAN
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 15927

10054
ADDRESS: 46 HARWOOD ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6700
SELLER: S JACKSON
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10059
ADDRESS: 17 HELEN ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: WEEKS WILLIAM
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 14300

10061
ADDRESS: 27 HEWINS ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 5100
SELLER: SWAIN W. ETAL
BUYER: (HUD)OSEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 19460

10072
ADDRESS: 73 JACOB ST
CLASS: ONE FAMILY
ASSESSED VALUE: 3500
SELLER: K ROGERS
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10077
ADDRESS: 10 JOHNSTON RD.
CLASS: TWO FAMILY
ASSESSED VALUE: 5400
SELLER: HOME SAVS. BANK
BUYER: ADMIN OF VET AFFAS
TYPE: BANK - HUD/VA
PRICE: 13000

10079
ADDRESS: 15 JONES AVE
CLASS: ONE FAMILY
ASSESSED VALUE: 2800
SELLER: A CARTWRIGHT
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10080
ADDRESS: 38 JONES AVE
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: E WALKER
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10082
ADDRESS: 32 JONES AVE.
CLASS: TWO FAMILY
ASSESSED VALUE: 3800
SELLER: EDMONDSAU E.L.
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 12000

10085
ADDRESS: 81 KINGSDALE ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6000
SELLER: RAYMOND WILLIAMS
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10086
ADDRESS: 7 KINGSDALE ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 6000
SELLER: GRANT CYNTHIA
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 19500

10089
ADDRESS: 15 LANDOR RD
CLASS: ONE FAMILY
ASSESSED VALUE: 3400
SELLER: CURTIS MARTIN
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10096
ADDRESS: 123 LUCERNE ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: HOME SAV BK
BUYER: SEC OF HOUSING
TYPE: BANK - HUD/VA
PRICE: 13514

10097
ADDRESS: 77 LUCERNE ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 7300
SELLER: CERDA M.C. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 10377

10106
ADDRESS: 35 MCLELLAN ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7500
SELLER: AUGUSTUS DENT
BUYER: VETERANS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 7400

10107
ADDRESS: 47 MCLELLAN ST
CLASS: TWO FAMILY
ASSESSED VALUE: 6800
SELLER: AQUILLA WALKER
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10114
ADDRESS: 627 MORTON ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 8000
SELLER: KING EARL E. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 1

10115
ADDRESS: 648 MORTON ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 7500
SELLER: MOORE T. JR. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 2000

10118
ADDRESS: 46 MOUNTAIN AVE
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: D ROMES
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10120
ADDRESS: 18 MOUNTAIN AVE.
CLASS: THREE FAMILY
ASSESSED VALUE: 6300
SELLER: GRADY LEMAY ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 10000

10125
ADDRESS: 92 NIGHTINGALE ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: CURRY HERMAN R.
BUYER: ADMIN OF VET AFFS.
TYPE: PRIVATE - HUD/VA
PRICE: 5100

10127
ADDRESS: 340 NORFOLK ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 3800
SELLER: FORD H. JR. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 13579

10128
ADDRESS: 355 NORFOLK ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 5700
SELLER: BROWN W.
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 5000

10160
ADDRESS: 15 SUTTON ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: WHITE L. JR. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 100

10166
ADDRESS: 29 TUCKER ST.
CLASS: THREE FAMILY
ASSESSED VALUE: 5000
SELLER: O'CASSIO A. ETAL
BUYER: (HUD)OSEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 9000

10172
ADDRESS: 36 VESTA RD
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: THOMAS MERCHELE
BUYER: VETERANS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 5000

10178
ADDRESS: VL JONES AVE
CLASS: LAND
ASSESSED VALUE: 800
SELLER: A CARTWRIGHT
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10186
ADDRESS: 146 WASHINTON ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: DFO ADDRESS
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10191
ADDRESS: 11 WESCOTT ST
CLASS: TWO FAMILY
ASSESSED VALUE: 4200
SELLER: JOHN RIDLEY
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 12000

10193
ADDRESS: 625 WEST PARK ST
CLASS: TWO FAMILY
ASSESSED VALUE: 4500
SELLER: F BARRIENTOS
BUYER: VETERANS ADMINS
TYPE: PRIVATE - HUD/VA
PRICE: 3800

10194
ADDRESS: 27 WESTMORE RD
CLASS: TWO FAMILY
ASSESSED VALUE: 5700
SELLER: PROV INSTIT SAV
BUYER: SEC OF HOUSING
TYPE: BANK - HUD/VA
PRICE: 23033

10203
ADDRESS: 28 WILLOWWOOD ST
CLASS: THREE FAMILY
ASSESSED VALUE: 5300
SELLER: WILLIE WIDEMAN
BUYER: VETERANS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 1300

10210
ADDRESS: 92 WOODROW AVE
CLASS: THREE FAMILY
ASSESSED VALUE: 5700
SELLER: WALTER JACKSON
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10213
ADDRESS: 104 WOODROW AVE.
CLASS: TWO FAMILY
ASSESSED VALUE: 3000
SELLER: SHALLWOOD W. ETAL
BUYER: (HUD) SEC OF HOUS.
TYPE: PRIVATE - HUD/VA
PRICE: 11000

10221
ADDRESS: 1059A BLUE HILL AVE.
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: CHURCH OF CHRIST
BUYER: (HUD) SEC OF HOUS.
TYPE: INSTITUTIONAL - HUD/VA
PRICE: 20119

WARD 15

10250
ADDRESS: 26 CAMERON
CLASS: THREE FAMILY
ASSESSED VALUE: 6700
SELLER: T KING
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 10289

10276
ADDRESS: 41 DITSON
CLASS: THREE FAMILY
ASSESSED VALUE: 6000
SELLER: E DORMADY
BUYER: VETS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 3100

10280
ADDRESS: 28 DRAPER
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: PROV INSTIT SAV
BUYER: VETERANS ADMIN
TYPE: BANK - HUD/VA
PRICE: 11000

10307
ADDRESS: 70 GLENDALE
CLASS: ONE FAMILY
ASSESSED VALUE: 4200
SELLER: E WISE
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10313
ADDRESS: 49 HAMILTON
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: BOS 5 CNT SAV BK
BUYER: SEC OF HOUSING
TYPE: BANK - HUD/VA
PRICE: 21679

10328
ADDRESS: 9 HOLIDAY
CLASS: ONE FAMILY
ASSESSED VALUE: 3700
SELLER: DORCESTER SAV BK
BUYER: R POWDRASH
TYPE: BANK - HUD/VA
PRICE: 5300

10377
ADDRESS: 39 MT EVERETT
CLASS: TWO FAMILY
ASSESSED VALUE: 8000
SELLER: BOS 5 CNT SAV
BUYER: R POWDERUSH
TYPE: BANK - HUD/VA
PRICE: 4299

10373
ADDRESS: 31 MT IDA RD
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: SUF FRANK SAV BK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 14600

10402
ADDRESS: 28 RICHFIELD
CLASS: TWO FAMILY
ASSESSED VALUE: 5700
SELLER: L BRASLEY
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 10000

10420
ADDRESS: 10 DEBROC
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: T FITZPATRICK
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 9286

10434
ADDRESS: 180 WESTVILLE ST.
CLASS: TWO FAMILY
ASSESSED VALUE: 5700
SELLER: COLEMAN, J.
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 100

WARD 16

10464
ADDRESS: 17 CENTRE
CLASS: APARTMENTS (4+)
ASSESSED VALUE: 6000
SELLER: B MEGARTY
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 24220

10479
ADDRESS: 27 FAULKNER
CLASS: TWO FAMILY
ASSESSED VALUE: 4000
SELLER: KT MURRAY
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 10156

10513
ADDRESS: 40 PARKMAN
CLASS: ONE FAMILY
ASSESSED VALUE: 5000
SELLER: V CHANCY
BUYER: VETS ADMIN
TYPE: PRIVATE - HUD/VA
PRICE: 14400

10521
ADDRESS: 27 TEMPLETON
CLASS: THREE FAMILY
ASSESSED VALUE: 7500
SELLER: H BARNES
BUYER: SEC OF HOUSING
TYPE: PRIVATE - HUD/VA
PRICE: 500

10524
ADDRESS: 49 TEMPLETON
CLASS: THREE FAMILY
ASSESSED VALUE: 7500
SELLER: HME SAV BK
BUYER: VETS ADMIN
TYPE: BANK - HUD/VA
PRICE: 6454

WARD 17

10546
ADDRESS: 34 ALPHA RD
CLASS: THREE FAMILY
ASSESSED VALUE: 6000
SELLER: HOME SAV BK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 11696

10565
ADDRESS: 89 CLAYBOURNE ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: R GEAR
BUYER: HUD
TYPE: PRIVATE - HUD/VA
PRICE: 13149

10570
ADDRESS: 19 CROWELL ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: HME OWNERS FED
BUYER: VETS ADMIN
TYPE: BANK - HUD/VA
PRICE: 16000

10574
ADDRESS: 42 EDSON ST
CLASS: TWO FAMILY
ASSESSED VALUE: 6000
SELLER: HME SAV BK
BUYER: VETS ADMIN
TYPE: BANK - HUD/VA
PRICE: 15300

10643
ADDRESS: 3 WALDORF ST
CLASS: ONE FAMILY
ASSESSED VALUE: 5300
SELLER: PROV INSTIT SAV
BUYER: VETS ADMIN
TYPE: BANK - HUD/VA
PRICE: 16700

WARD 13

10671
ADDRESS: 116 ALMONT
CLASS: ONE FAMILY
ASSESSED VALUE: 6400
SELLER: CHARLESTOWN SAV BK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 25085

10680
ADDRESS: 82 ASTORIA ST
CLASS: TWO FAMILY
ASSESSED VALUE: 7200
SELLER: WORKINGMENS COOP
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 18200

10757
ADDRESS: 199 COLORADO
CLASS: ONE FAMILY
ASSESSED VALUE: 5000
SELLER: HOME SAV BANK
BUYER: ADMIN VET AFFAIRS
TYPE: BANK - HUD/VA
PRICE: 18500

10782
ADDRESS: 12 DANIA ST
CLASS: ONE FAMILY
ASSESSED VALUE: 6000
SELLER: SO. BOS SAV BANK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 20485

10912
ADDRESS: 73 FAVRE
CLASS: ONE FAMILY
ASSESSED VALUE: 6300
SELLER: S OLIVEIRA
BUYER: ADMIN VET AFFAIRS
TYPE: PRIVATE - HUD/VA
PRICE: 20000

10966
ADDRESS: 58 HIAWATHA RD
CLASS: THREE FAMILY
ASSESSED VALUE: 8300
SELLER: HOME SAV BK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 23735

10983
ADDRESS: 977 NORTON ST
CLASS: THREE FAMILY
ASSESSED VALUE: 6500
SELLER: PROV INST FOR SAV
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 14300

11046
ADDRESS: 14 RICH ST
CLASS: ONE FAMILY
ASSESSED VALUE: 3600
SELLER: CHAS TOWN SAVINGS
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 10000

11057
ADDRESS: 49 RIDLON ST.
CLASS: ONE FAMILY
ASSESSED VALUE: 4900
SELLER: CONNOLLY, T.
BUYER: ALEXANDER, A.
TYPE: BANK - HUD/VA
PRICE: 24000

11202
ADDRESS: 78 WILMORE ST
CLASS: THREE FAMILY
ASSESSED VALUE: 7000
SELLER: CHASTOWN SAV BANK
BUYER: HUD
TYPE: BANK - HUD/VA
PRICE: 18000

WARD 19

WARD 20

11553
ADDRESS: 1591 CENTRE
CLASS: TWO FAMILY
ASSESSED VALUE: 10100
SELLER: ROSLINDALE COOP BA
BUYER: SEC. H.U.D.
TYPE: BANK - HUD/VA
PRICE: 22000

WARD 21

WARD 22

22 WARD OF SALE

113 PROPERTY SALE

AT WARD READY
ENTER COMMAND:

COMPUTER APPROACH TO PREPARING A REPORT OF
ALL 1976 PROPERTIES SOLD TO HUD OR VA
LISTED BY WARD

```
CITY OF BOSTON PROPERTY SALES          80/07/08          09.49

ENTER ? FOR HELP   ?? FOR MORE HELP   AND * TO ABORT

SALES READY
ENTER COMMAND: RF

    1 YEAR READY
ENTER COMMAND: RS

   45 WARD READY
ENTER COMMAND: BG
BUILDING REPORT GENERATOR FOR WARD
ENTER TITLE: ALL 1976 PROPERTIES SOLD TO HUD/VA BY WARD
ENTER LITERAL: ' '
ENTER WARD ELEMENT TO LIST: WARD          This literal specifies that wards be
ENTER LITERAL: •                          used as headings
ENTER WARD ELEMENT TO LIST: •
ENTER WARD ELEMENT TO SUM: •
ENTER WARD SUBFILE TO REPORT: SALE        Ward subfile is linked to Sale subfile

   45 WARD READY
ENTER COMMAND: RS

 7801 SALE READY
ENTER COMMAND: BM                         Build Mask (BM), in this instance, instructs
                                          the system to pull out all transactions
BUILD SALE MASK 01                        where HUD or VA is the buyer.  There are
                                          7 such types;  therefore, 7 masks are needed
ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: PH
ENTER SALE ELEMENT TO FIND: •
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 02 AND -AND- TO MASK 01?   Y/N: N
BUILD MASK 02 AND -OR- TO MASK 01?    Y/N: Y

BUILD SALE MASK 02

ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: CH
ENTER SALE ELEMENT TO FIND: •
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 03 AND -AND- TO MASK 02?   Y/N: N
BUILD MASK 03 AND -OR- TO MASK 02?    Y/N: Y

BUILD SALE MASK 03

ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: AH
ENTER SALE ELEMENT TO FIND: •
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 04 AND -AND- TO MASK 03?   Y/N: N
BUILD MASK 04 AND -OR- TO MASK 03?    Y/N: Y
```

• Signifies that the only response needed is carriage return.

```
BUILD SALE MASK 04

ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: HH
ENTER SALE ELEMENT TO FIND:*
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 05 AND -AND- TO MASK 04?   Y/N: N
BUILD MASK 05 AND -OR- TO MASK 04?   Y/N: Y

BUILD SALE MASK 05

ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: BH
ENTER SALE ELEMENT TO FIND:*
ADDITIONAL MASKS NOT NEEDED?   Y/N: N
BUILD MASK 06 AND -AND- TO MASK 05?   Y/N: N
BUILD MASK 06 AND -OR- TO MASK 05?   Y/N: Y

BUILD SALE MASK 06

ENTER SALE ELEMENT TO FIND: TYPE
ENTER RELATION: EQ
ENTER TYPE: IH
ENTER SALE ELEMENT TO FIND:*
ADDITIONAL MASKS NOT NEEDED?   Y/N: Y

 7801 SALE READY
ENTER COMMAND: BG
BUILDING REPORT GENERATOR FOR SALE
ENTER TITLE:*
ENTER LITERAL: ' !'
ENTER SALE ELEMENT TO LIST: R#
ENTER LITERAL: ' !ADDRESS: '
ENTER SALE ELEMENT TO LIST: ADRES
ENTER LITERAL: ' !CLASS: '
ENTER SALE ELEMENT TO LIST: CLASS
ENTER LITERAL: ' !SELLER: '
ENTER SALE ELEMENT TO LIST: SELER
ENTER LITERAL: ' !BUYER: '
ENTER SALE ELEMENT TO LIST: BUYER
ENTER LITERAL: ' !PRICE: '
ENTER SALE ELEMENT TO LIST: PRICE
ENTER LITERAL: ' !ASSESSED VALUE: '
ENTER SALE ELEMENT TO LIST: ASVAL
ENTER LITERAL: ' !TYPE: '
ENTER SALE ELEMENT TO LIST: TYPE
ENTER LITERAL:*
ENTER SALE ELEMENT TO LIST:*
ENTER SALE ELEMENT TO SUM:*

 7801 SALE READY
ENTER COMMAND: *

   45 WARD READY
ENTER COMMAND: LR
ON TERMINAL?   Y/N: Y
```

Building a generator (BG) tells t
system the information to be list
in the report.

Now we step back to the Ward sub

This command (LR) lists the repor

CITY OF BOSTON PROPERTY SALES 80/07/08 10.04

ALL 1976 PROPERTIES SOLD TO HUD/VA BY WARD

Partial Listing of the generated report.

WARD 1

WARD 2

WARD 3

WARD 4

8393
ADDRESS: SWS WORCESTER
CLASS: APARTMENTS (4+)
SELLER: URBAN HOUS ASSOC
BUYER: HUD
PRICE: 2000000
ASSESSED VALUE: 54800
TYPE: PRIVATE - HUD/VA

WARD 5

WARD 6

WARD 7

9153
ADDRESS: 7 ELDEN ST.
CLASS: THREE FAMILY
SELLER: LARKINS P.J.
BUYER: (HUD) SEC OF HOUS.
PRICE: 12000
ASSESSED VALUE: 6800
TYPE: PRIVATE - HUD/VA

WARD 8

WARD 9

9388
ADDRESS: 2 GREENWICH CT.
CLASS: ONE FAMILY
SELLER: GOVT.NATL.MTG.ASSO
BUYER: HUD
PRICE: 11589
ASSESSED VALUE: 800
TYPE: BANK - HUD/VA

9434
ADDRESS: 83 W SPRINGFIELD
CLASS: APARTMENTS (4+)
SELLER: URBAN HOUSING
BUYER: SEC OF HOUSING
PRICE: 2000000
ASSESSED VALUE: 39500
TYPE: PRIVATE - HUD/VA

CITY OF BOSTON PROPERTY SALES 80/06/26 16.35

ALL 1976 PROPERTIES SOLD TO PUBLIC AUTHORITIES BY WARD

WARD 1

7895
ADDRESS: 404 FRANKFORT ST
CLASS: THREE FAMILY
SELLER: PAUL STRUZZIERO
BUYER: MASS PORT AUTH
PRICE: 47300
ASSESSED VALUE: 5600
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/04/20

7930
ADDRESS: 382 LOVELL ST
CLASS: THREE FAMILY
SELLER: JOHN O'BRIEN
BUYER: MASS PORT AUTH
PRICE: 47000
ASSESSED VALUE: 5500
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/04/20

7972
ADDRESS: 67 NEPTUNE RD
CLASS: THREE FAMILY
SELLER: PETER INGENERI
BUYER: MASS PORT AUTH
PRICE: 52400
ASSESSED VALUE: 6000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/01/16

7973
ADDRESS: 69 NEPTUNE RD
CLASS: THREE FAMILY
SELLER: EDW LYNCH
BUYER: MASS PORT AUTH
PRICE: 50500
ASSESSED VALUE: 6000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/05/27

WARD 2

WARD 3

8226
ADDRESS: 414-416 HARRISON AVE.
CLASS: MIXED RESIDENTIAL/COMM.
SELLER: PAPPAS, ALICE
BUYER: BOSTON REDEV. AUTH
PRICE: 18500
ASSESSED VALUE: 7000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 00/00/00

8275
ADDRESS: NWS ACCLON WAY-CHAS RIVER
CLASS: LAND
SELLER: MESERNE, R.W., B.
BUYER: MASS BAY TRANS.
PRICE: 36549000
ASSESSED VALUE: 380000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/27/12

WARD 4

WARD 5

WARD 6

WARD 7

WARD 8

WARD 9

9377
ADDRESS: 95-97 DUDLEY ST.
CLASS: APARTMENTS (4+)
SELLER: B & L GOLDSTEIN
BUYER: BRA
PRICE: 12000
ASSESSED VALUE: 5000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/09/23

9378
ADDRESS: 4 ELMWOOD
CLASS: ONE FAMILY
SELLER: HENRY CUTTING
BUYER: BRA
PRICE: 10000
ASSESSED VALUE: 1400
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/05/21

9379
ADDRESS: 11 ELMWOOD
CLASS: TWO FAMILY
SELLER: WSTEPHEN SMOLINSKY
BUYER: BRA
PRICE: 14000
ASSESSED VALUE: 2000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/04/07

9380
ADDRESS: 43-49 ELMWOOD
CLASS: TWO FAMILY
SELLER: JOSEPH MURPHY
BUYER: BRA
PRICE: 14000
ASSESSED VALUE: 3000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/03/19

9381
ADDRESS: 2 ELMWOOD PL
CLASS: ONE FAMILY
SELLER: JOHN BARTLETT
BUYER: BRA
PRICE: 9500
ASSESSED VALUE: 1100
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/04/07

9382
ADDRESS: 23 ELMWOOD ST.
CLASS: TWO FAMILY
SELLER: CONVERSE, R.
BUYER: BRA
PRICE: 10000
ASSESSED VALUE: 3000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/08/05

9391
ADDRESS: 19-23 GUILD RD.
CLASS: COMMERICAL
SELLER: B & L GOLDSTEIN
BUYER: BRA
PRICE: 66600
ASSESSED VALUE: 27000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/09/26

9415
ADDRESS: S.W.S. RUGGLES ST.
CLASS: LAND
SELLER: CITY OF BOSTON
BUYER: BRA
PRICE: 6297
ASSESSED VALUE: 700
TYPE: CITY - AUTHORITY
DATE OF SALE: 76/08/30

```
WARD 11

 9594
ADDRESS: 8 CEDAR PARK
CLASS: ONE FAMILY
SELLER: BARTLETT, B.
BUYER: BOSTON REDEVELOPME
PRICE:          7700
ASSESSED VALUE:          2000
TYPE: PRIVATE - AUTHORITY
DATE OF SALE: 76/22/10

WARD 12

WARD 13

WARD 14

WARD 15

WARD 16

WARD 17

WARD 18

WARD 19

WARD 20

WARD 21

WARD 22

   22     WARD OF SALE

   15     PROPERTY SALE

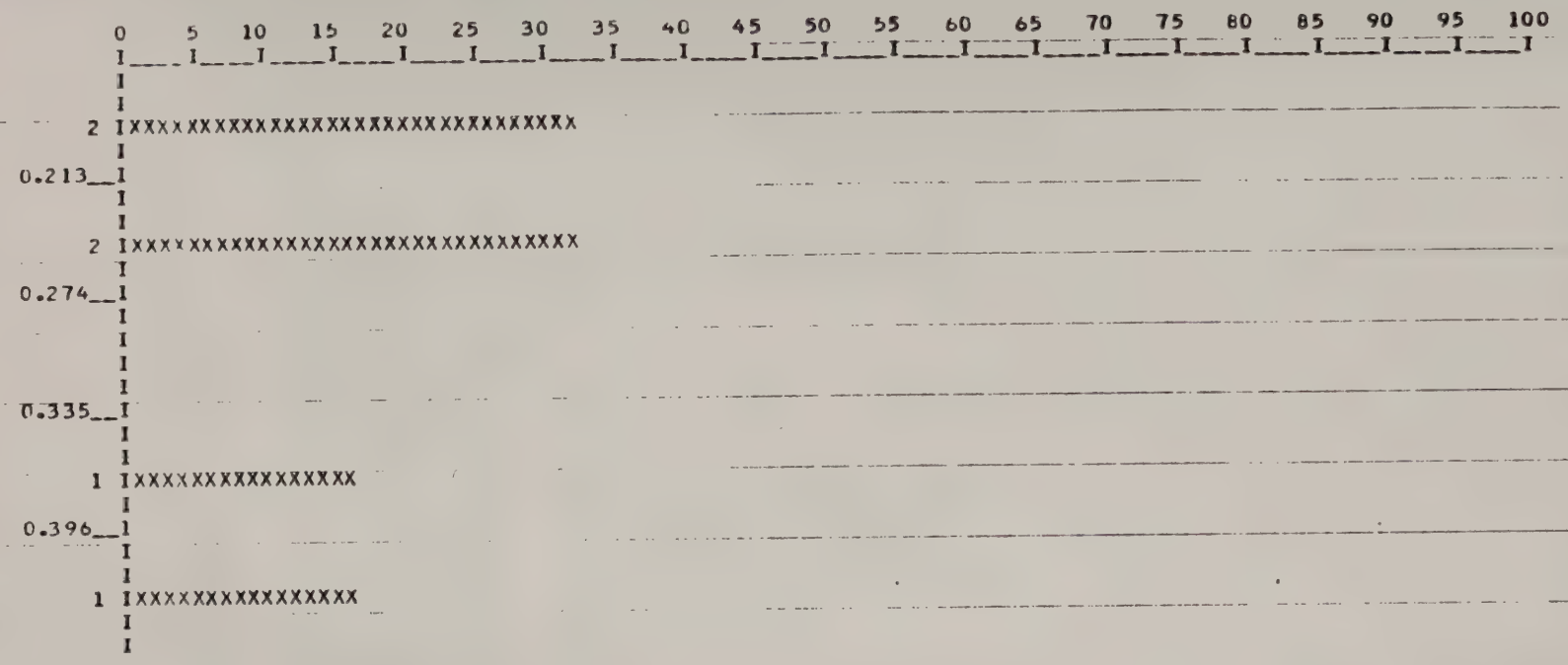
   45 WARD READY
ENTER COMMAND:
```

6. Graphic histograms and related summary statistics of Boston residential property sales, by ward and property type; a technical report with the acronym HIST.

These are excerpts from several hundred pages of descriptive statistics for all types of property sold in Boston during 1974, 1975, and 1976. Chapter 2 of Volume 1I explains the measures of central tendency and dispersion reported for both sales prices and assessment to sales price ratios. Further examples may be found in Volume I, Chapter 4 and Volume II, Chapter 2. Included here are analyses of 1975 data for:

Ward	Property Type
3	3-family
5	condominiums
8	1-family
10	2-family
11	condominiums
12	apartments
13	3-family
17	1-family
18	1-family
City	1-family
City	apartments

WARD 3 CLASS(ES): R3
1975 ASSESSMENT SALES RATIO



				ASSESSED VALUES	
TOTAL VALID OBSERVATIONS :	6				
RANGE :	0.154	0.681		5,000.000	23,500.000
MEAN A/S RATIO :	0.305			10,016.666	
STANDARD DEVIATION :	0.195			6,818.789	
MEAN WEIGHTED A/S RATIO :	0.274				
STANDARD DEVIATION :	0.128				
MEDIAN A/S RATI :	0.245			7,300.000	
COEFFICIENT OF DISPERSION:	47.211				

WARD 3 CLASS(ES): R3
1975 SALES PRICE

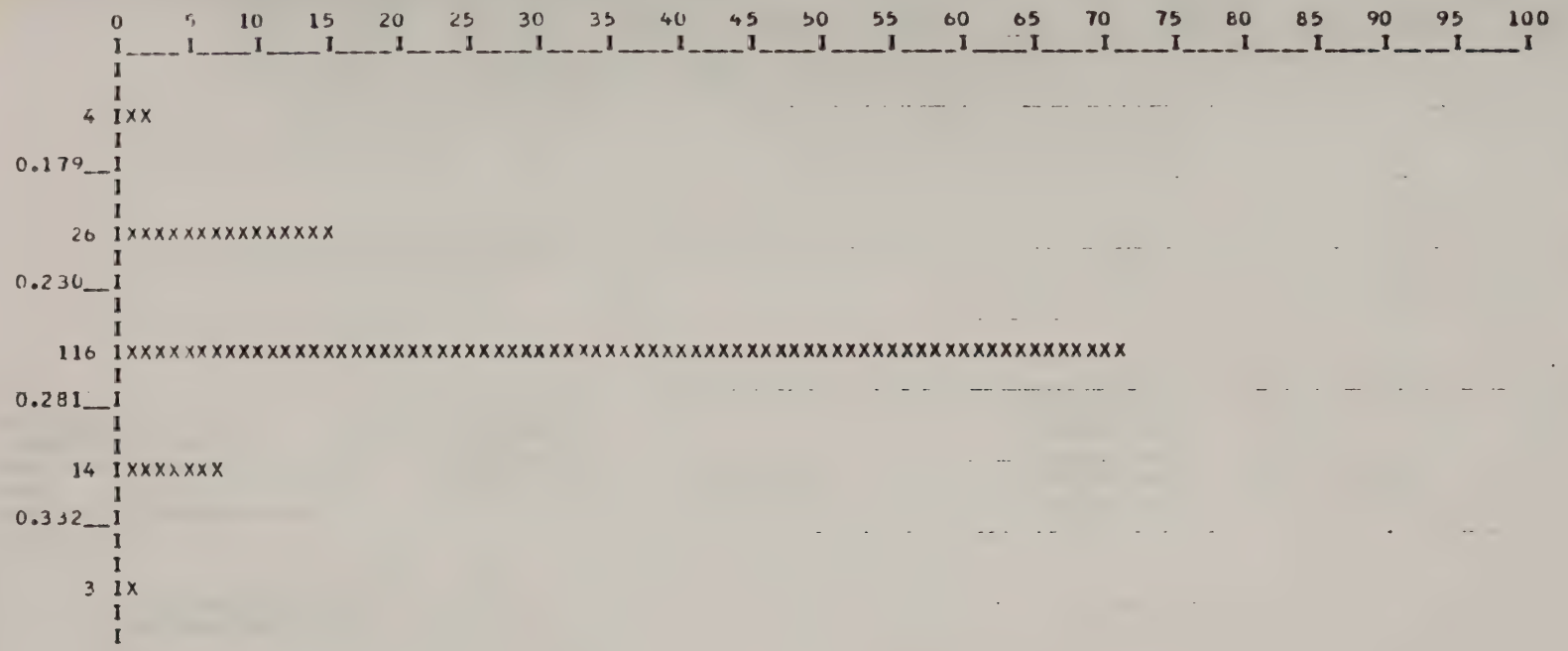
PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
        2 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    25579__I
          I
          I
        1 IXXXXXXXXXXXXXXXX
          I
    32888__I
          I
          I
        1 IXXXXXXXXXXXXXXXX
          I
    40196__I
          I
          I
        1 IXXXXXXXXXXXXXXXX
          I
    47504__I
          I
          I
        1 IXXXXXXXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS	:	6		ASSESSED VALUES	
RANGE	:	14,250.000	70,000.000	5,000.000	23,500.000
MEAN SALES PRICE	:	36,541.667		10,016.666	
STANDARD DEVIATION	:	19,082.001		6,816.789	
MEDIAN SALES PRIC	:	32,500.000		7,300.000	

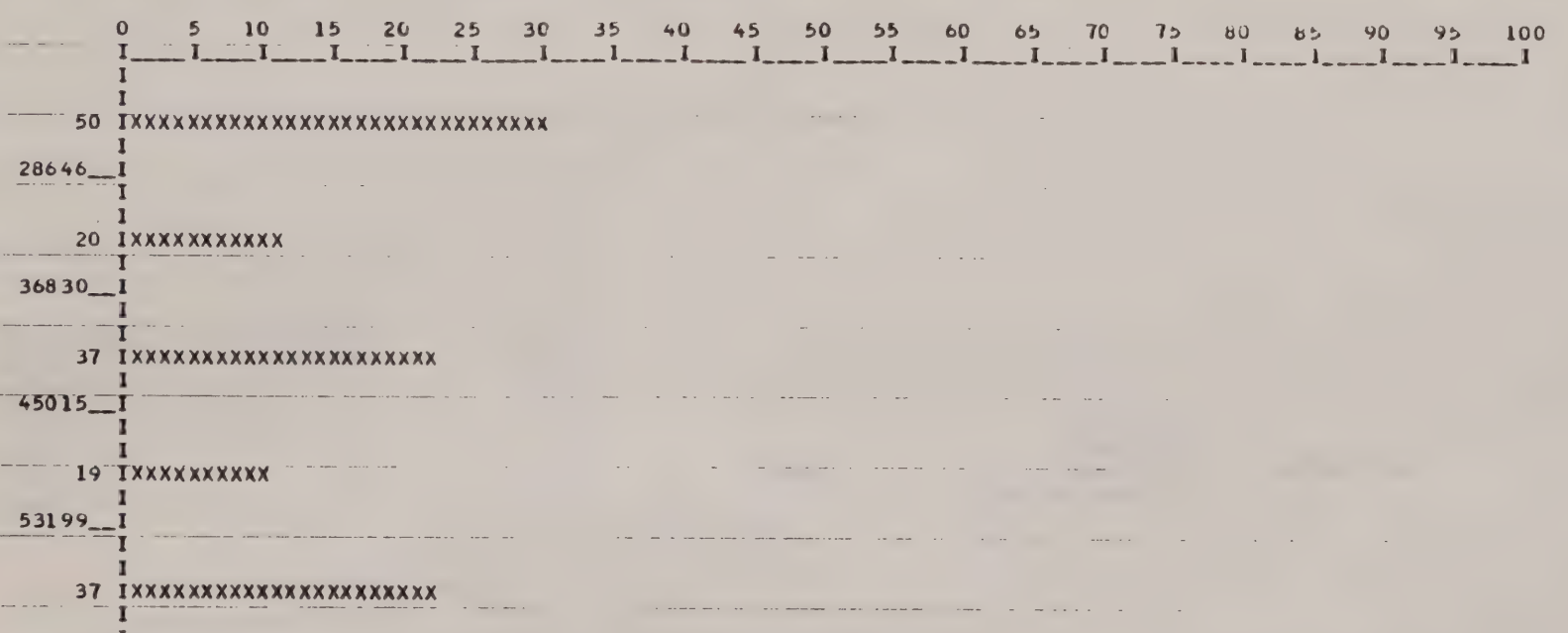
WARD 5 CLASS(ES): CONDOMINIUM
1975 ASSESSMENT SALES RATIO

PERCENTAGES



TOTAL VALID OBSERVATIONS :	163			ASSESSED VALUES	
RANGE :	0.142	0.655		3,400.000	72,000.000
MEAN A/S RATIO :	0.256			10,389.570	
STANDARD DEVIATION :	0.048			6,191.019	
MEAN WEIGHTED A/S RATIO :	0.254				
STANDARD DEVIATION :	0.063				
MEDIAN A/S RATI :	0.259			9,800.000	
COEFFICIENT OF DISPERSION:	8.795				

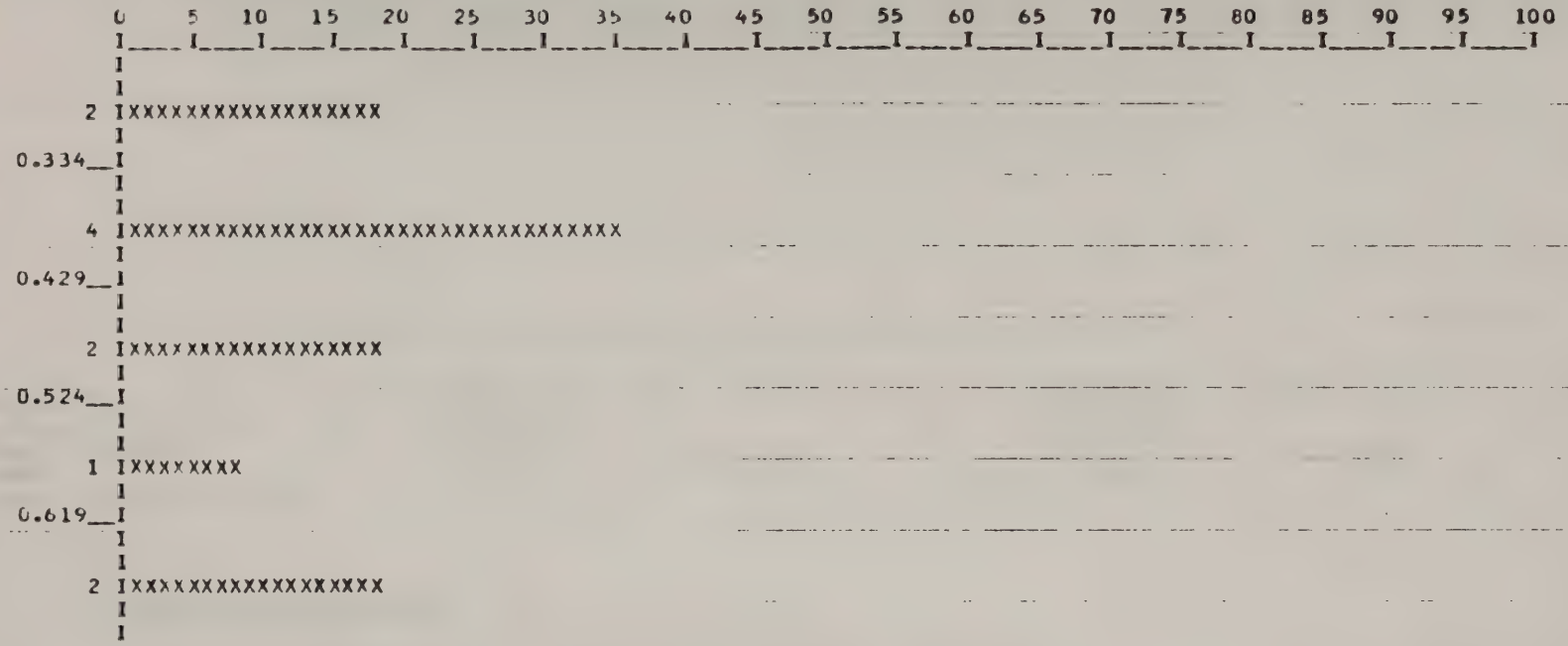
WARD 5 CLASS(ES): CONDOMINIUM
1975 SALES PRICE



TOTAL VALID OBSERVATIONS	:	163		ASSESSED VALUES	
RANGE	:	12,900.000	110,000.000	3,400.000	72,000.000
MEAN SALES PRICE	:	40,922.331		10,369.570	
STANDARD DEVIATION	:	17,772.327		6,191.019	
MEDIAN SALES PRIC	:	39,000.000		9,800.000	

WARD 8 CLASS(ES): R1
1975 ASSESSMENT SALES RATIO

PERCENTAGES



				ASSESSED VALUES	
TOTAL VALID OBSERVATIONS :	11				
RANGE :	0.236	0.875		1,500.000	10,000.000
MEAN A/S RATIO :	0.477			5,218.181	
STANDARD DEVIATION :	0.207			2,836.309	
MEAN WEIGHTED A/S RATIO :	0.370				
STANDARD DEVIATION :	0.158				
MEDIAN A/S RATI :	0.375			3,800.000	
COEFFICIENT OF DISPERSION:	40.727				

WARD 8 CLASS(ES): R1
1975 SALES PRICE

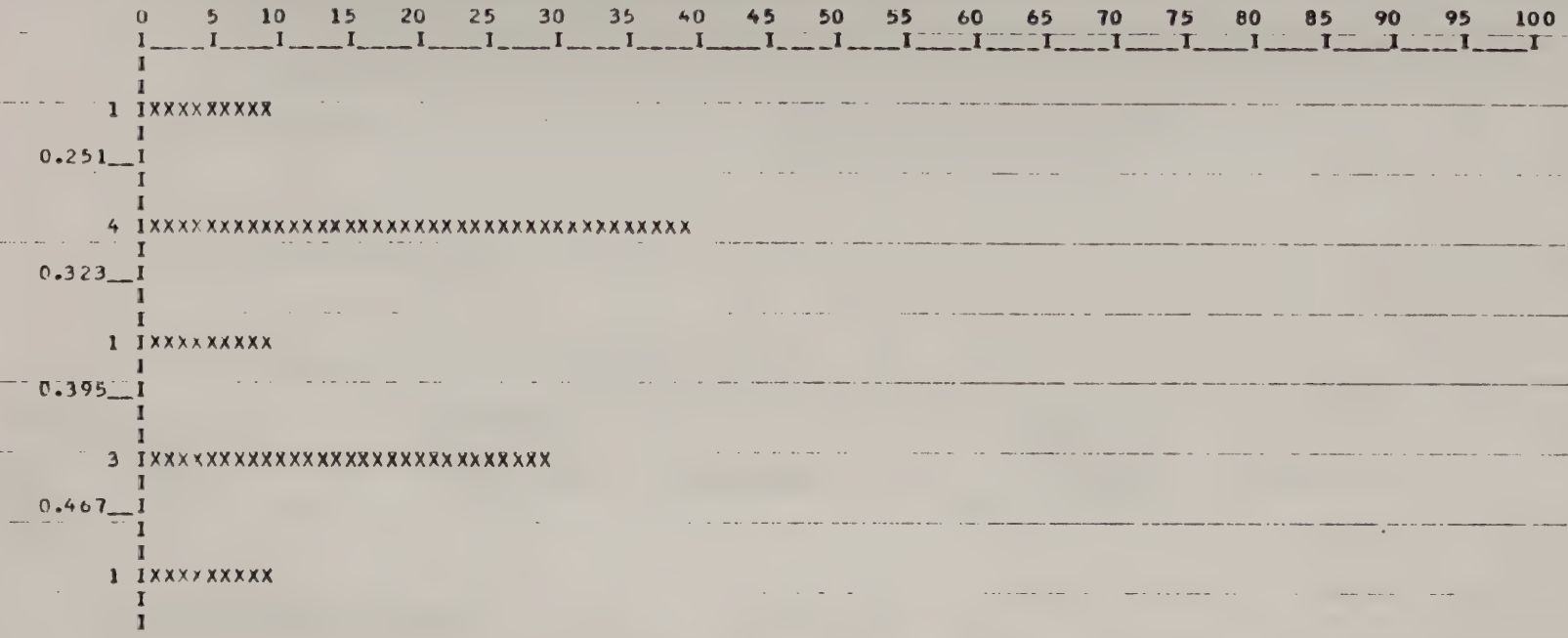
```
                                  P E R C E N T A G E S

          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
        6 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    9875__I
          I
          I
        1 IXXXXXXXX
          I
   12697__I
          I
          I
        1 IXXXXXXXX
          I
   15518__I
          I
          I
          I
          I
   18340__I
          I
          I
        3 IXXXXXXXXXXXXXXXXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS	:	11		ASSESSED VALUES	
RANGE	:	4,000.000	42,300.000	1,500.000	10,000.000
MEAN SALES PRICE	:	14,107.455		5,218.181	
STANDARD DEVIATION	:	12,414.198		2,836.309	
MEDIAN SALES PRIC	:	7,500.000		3,800.000	

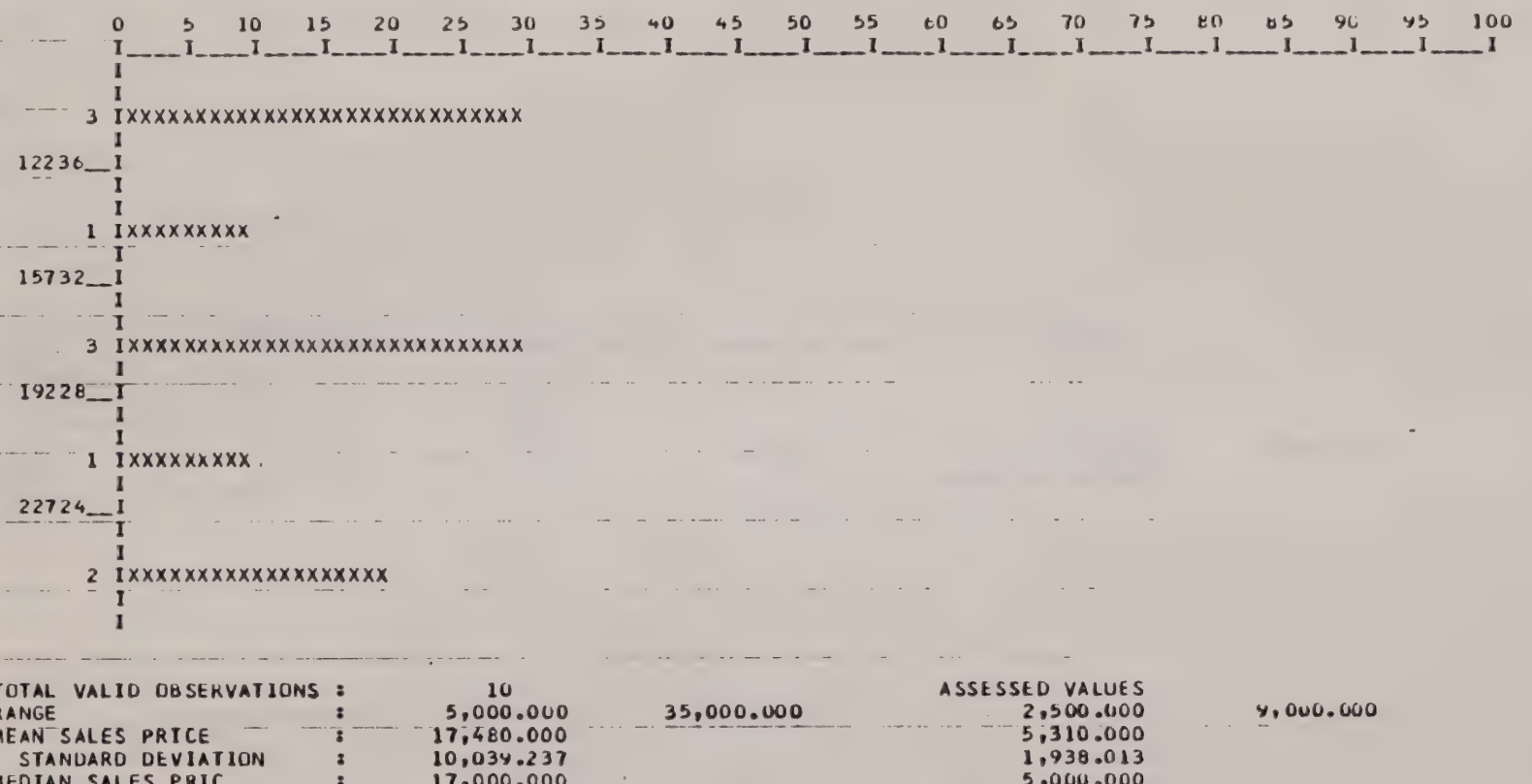
WARD 10 CLASS(ES): R2
1975 ASSESSMENT SALES RATIO

PERCENTAGES



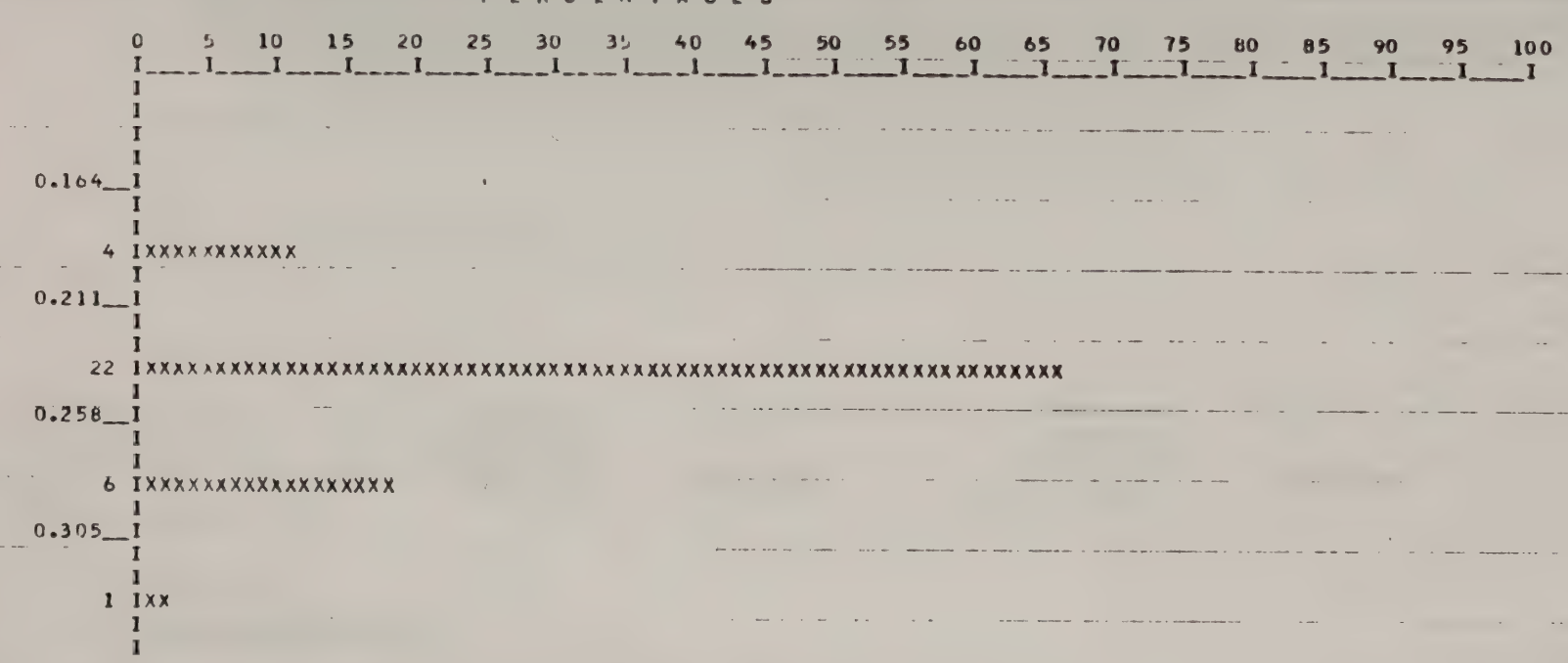
TOTAL VALID OBSERVATIONS	:	10		ASSESSED VALUES	
RANGE	:	0.186	0.660	2,500.000	9,000.000
MEAN A/S RATIO	:	0.359		5,310.000	
STANDARD DEVIATION	:	0.135		1,938.013	
MEAN WEIGHTED A/S RATIO	:	0.304			
STANDARD DEVIATION	:	0.100			
MEDIAN A/S RATI	:	0.294		5,000.000	
COEFFICIENT OF DISPERSION	:	34.082			

WARD 10 CLASS(ES): R2
1975 SALES PRICE



TOTAL VALID OBSERVATIONS	:	10		ASSESSED VALUES	
RANGE	:	5,000.000	35,000.000	2,500.000	9,000.000
MEAN SALES PRICE	:	17,480.000		5,310.000	
STANDARD DEVIATION	:	10,039.237		1,938.013	
MEDIAN SALES PRIC	:	17,000.000		5,000.000	

WARD 11 CLASS(ES): CONDOMINIUM
1975 ASSESSMENT SALES RATIO



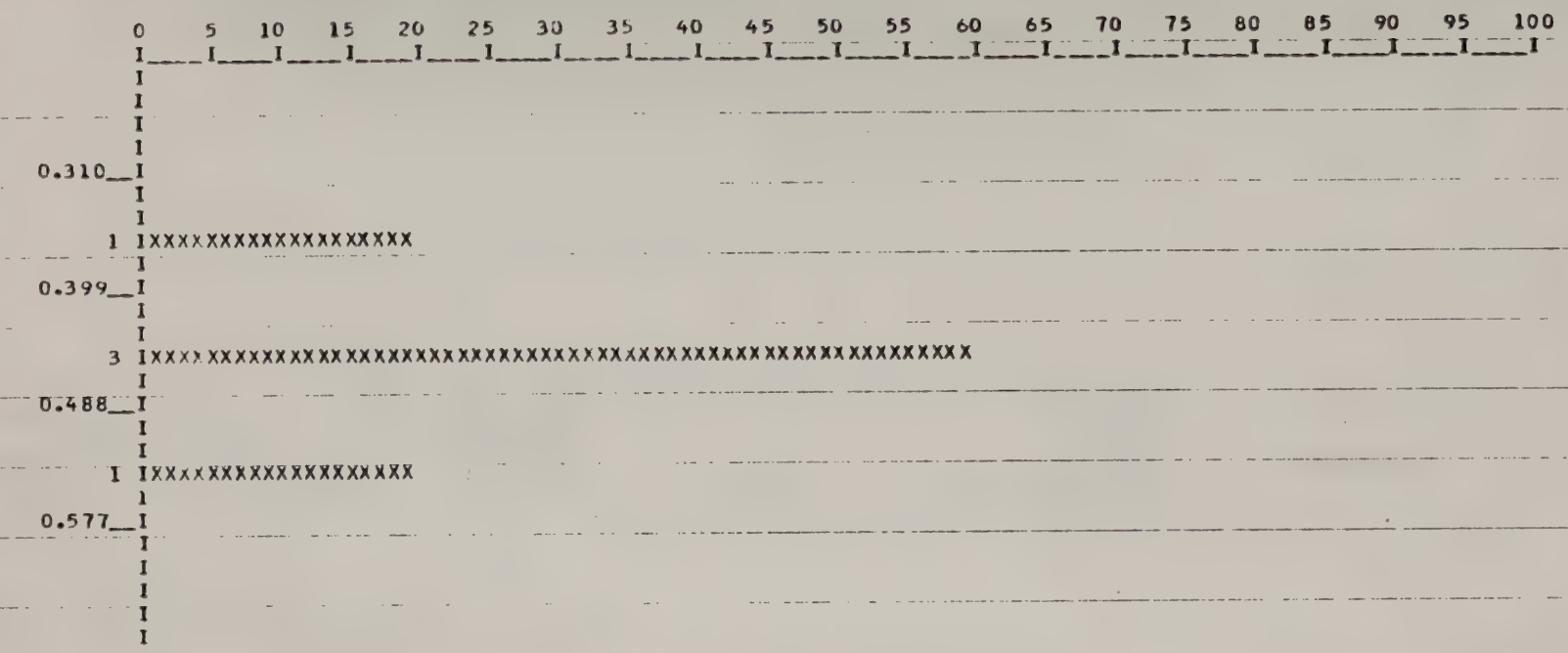
TOTAL VALID OBSERVATIONS	:	33		ASSESSED VALUES	
RANGE	:	0.201	0.313	3,600.000	4,800.000
MEAN A/S RATIO	:	0.235		4,118.181	
STANDARD DEVIATION	:	0.025		345.607	
MEAN WEIGHTED A/S RATIO	:	0.233			
STANDARD DEVIATION	:	0.024			
MEDIAN A/S RATI	:	0.225		4,200.000	
COEFFICIENT OF DISPERSION	:	8.902			

WARD 11 CLASS(ES): CONDOMINIUM
1975 SALES PRICE

PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
          I
          I
          I
   12365__I
          I
          I
        5 IXXXXXXXXXXXXXX
          I
   15897__I
          I
          I
       20 IXXXXXXXXXXXXX
```

WARD 12 CLASS(ES): R4
1975 ASSESSMENT SALES RATIO



TOTAL VALID OBSERVATIONS :	5		ASSESSED VALUES	
RANGE :	0.371	0.531	7,800.000	17,000.000
MEAN A/S RATIO :	0.444		11,180.000	
STANDARD DEVIATION :	0.062		3,459.952	
MEAN WEIGHTED A/S RATIO :	0.452			
STANDARD DEVIATION :	0.057			
MEDIAN A/S RATI :	0.412		10,000.000	
COEFFICIENT OF DISPERSION:	11.845			

WARD 12 CLASS(ES): R4
1975 SALES PRICE

```
                                  P E R C E N T A G E S

          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
          I
          I
    17325__I
          I
          I
        1 IXXXXXXXXXXXXXXXXX
          I
    22275__I
          I
          I
        3 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    27225__I
          I
          I
        1 IXXXXXXXXXXXXXXXXXX
          I
    32175__I
          I
          I
          I
          I
          I
```

				ASSESSED VALUES	
TOTAL VALID OBSERVATIONS	:	5			
RANGE	:	21,000.000	32,000.000	7,800.000	17,000.000
MEAN SALES PRICE	:	24,750.000		11,180.000	
STANDARD DEVIATION	:	4,242.511		3,459.952	
MEDIAN SALES PRIC	:	23,000.000		10,000.000	

WARD 13 CLASS(ES): R3
1975 ASSESSMENT SALES RATIO

PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
        9 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    0.467__I
          I
          I
        5 IXXXXXXXXXXXXXXXXXX
          I
    0.601__I
          I
          I
        3 IXXXXXXXXXXX
          I
    0.735__I
          I
          I
        1 IXXX
          I
    0.869__I
          I
          I
        6 IXXXXXXXXXXXXXXXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS :	24		ASSESSED VALUES		
RANGE :	0.137	1.833	3,800.000	8,500.000	
MEAN A/S RATIO :	0.668		6,295.833		
STANDARD DEVIATION :	0.410		1,172.359		
MEAN WEIGHTED A/S RATIO :	0.493				
STANDARD DEVIATION :	0.286				
MEDIAN A/S RATI :	0.560		6,600.000		
COEFFICIENT OF DISPERSION:	51.555				

WARD 13 CLASS(ES): R3
1975 SALES PRICE

PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
        7 IXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    8936__I
          I
          I
        4 IXXXXXXXXXXXXXXXX
          I
   11489__I
          I
          I
        4 IXXXXXXXXXXXXXXXX
          I
   14042__I
          I
          I
        1 IXXX
          I
   16595__I
          I
          I
        8 IXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS	:	24		ASSESSED VALUES	
RANGE	:	3,000.000	29,100.000	3,800.000	8,500.000
MEAN SALES PRICE	:	12,765.542		6,295.833	
STANDARD DEVIATION	:	6,717.090		1,172.359	
MEDIAN SALES PRIC	:	11,980.000		6,600.000	

WARD 17 CLASS(ES): R1
1975 ASSESSMENT SALES RATIO

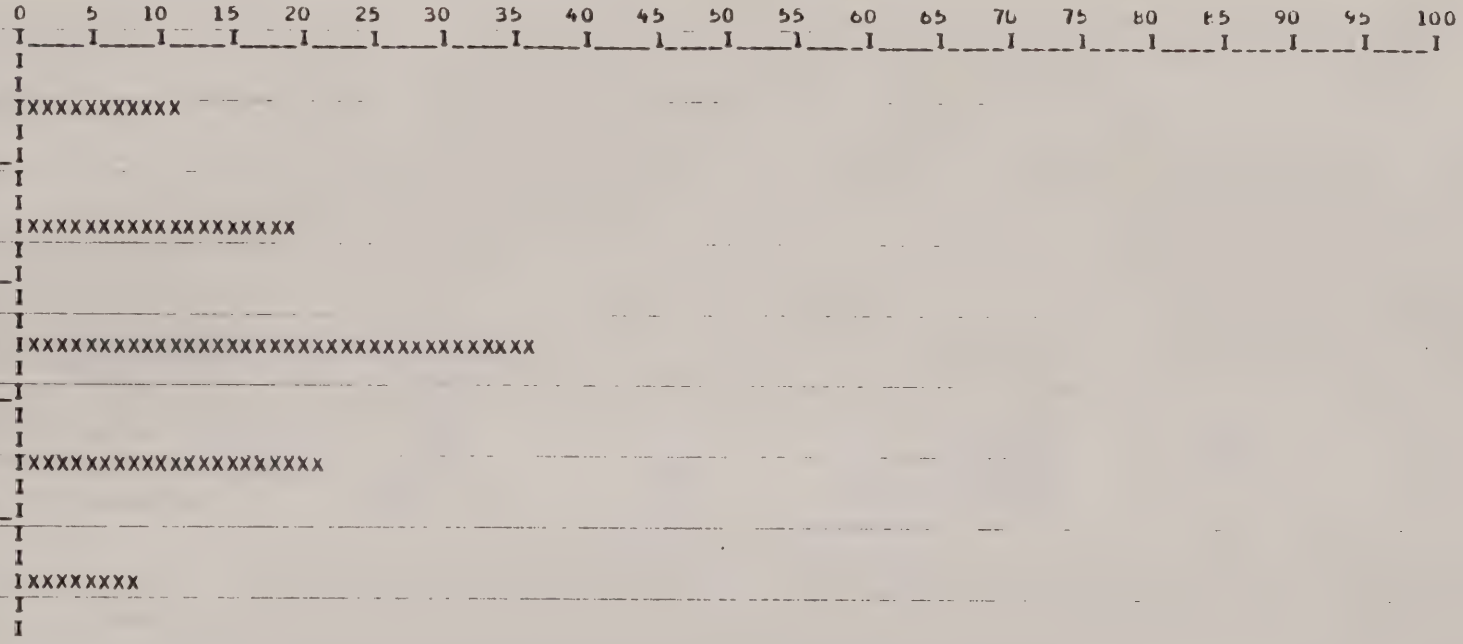
PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
       10 IXXXXXXXXXXX
          I
   0.190__I
          I
          I
       23 IXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
   0.245__I
          I
          I
       21 IXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
   0.300__I
          I
          I
       14 IXXXXXXXXXXXXXXXXX
          I
   0.355__I
          I
          I
        8 IXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS :	76		ASSESSED VALUES	
RANGE :	0.113	0.900	1,700.000	9,900.000
MEAN A/S RATIO :	0.273		5,114.473	
STANDARD DEVIATION :	0.104		1,356.365	
MEAN WEIGHTED A/S RATIO :	0.259			
STANDARD DEVIATION :	0.079			
MEDIAN A/S RATIO :	0.251		5,000.000	
COEFFICIENT OF DISPERSION:	25.508			

WARD 17 CLASS(ES): R1
1975 SALES PRICE

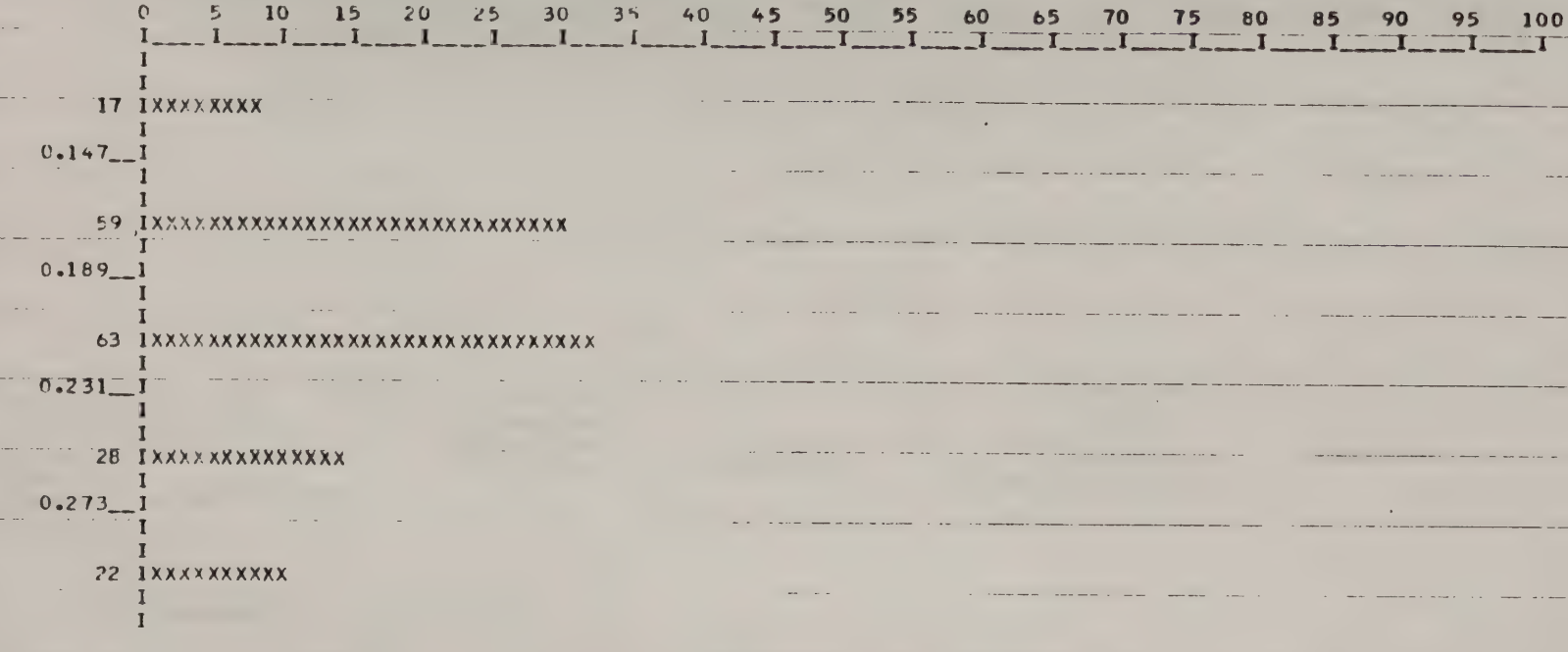
PERCENTAGES



				ASSESSED VALUES	
TOTAL VALID OBSERVATIONS	:	76			
RANGE	:	5,000.000	45,000.000	1,700.000	9,900.000
MEAN SALES PRICE	:	19,781.105		5,114.473	
STANDARD DEVIATION	:	5,620.261		1,356.365	
MEDIAN SALES PRIC	:	19,600.000		5,000.000	

WARD 18 CLASS(ES): R1
1975 ASSESSMENT SALES RATIO

PERCENTAGES



TOTAL VALID OBSERVATIONS :	189		ASSESSED VALUES	
RANGE :	0.105	0.509	2,000.000	8,300.000
MEAN A/S RATIO :	0.210		4,710.052	
STANDARD DEVIATION :	0.064		1,178.495	
MEAN WEIGHTED A/S RATIO :	0.202			
STANDARD DEVIATION :	0.054			
MEDIAN A/S RATI :	0.199		4,700.000	
COEFFICIENT OF DISPERSION:	21.959			

WARD 18 CLASS(ES): R1
1975 SALES PRICE

PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
       21 IXXXXXXXXXX
          I
    16298__I
          I
          I
       34 IXXXXXXXXXXXXXXXXXX
          I
    20954__I
          I
          I
       72 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    25610__I
          I
          I
       49 IXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    30267__I
          I
          I
       13 IXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS	:	189		ASSESSED VALUES	
RANGE	:	10,000.000	45,000.000	2,000.000	8,300.000
MEAN SALES PRICE	:	23,282.206		4,710.052	
STANDARD DEVIATION	:	5,683.346		1,178.495	
MEDIAN SALES PRIC	:	23,500.000		4,700.000	

WARDS 1 - 22 CLASS: R1
1975 ASSESSMENT SALES RATIO

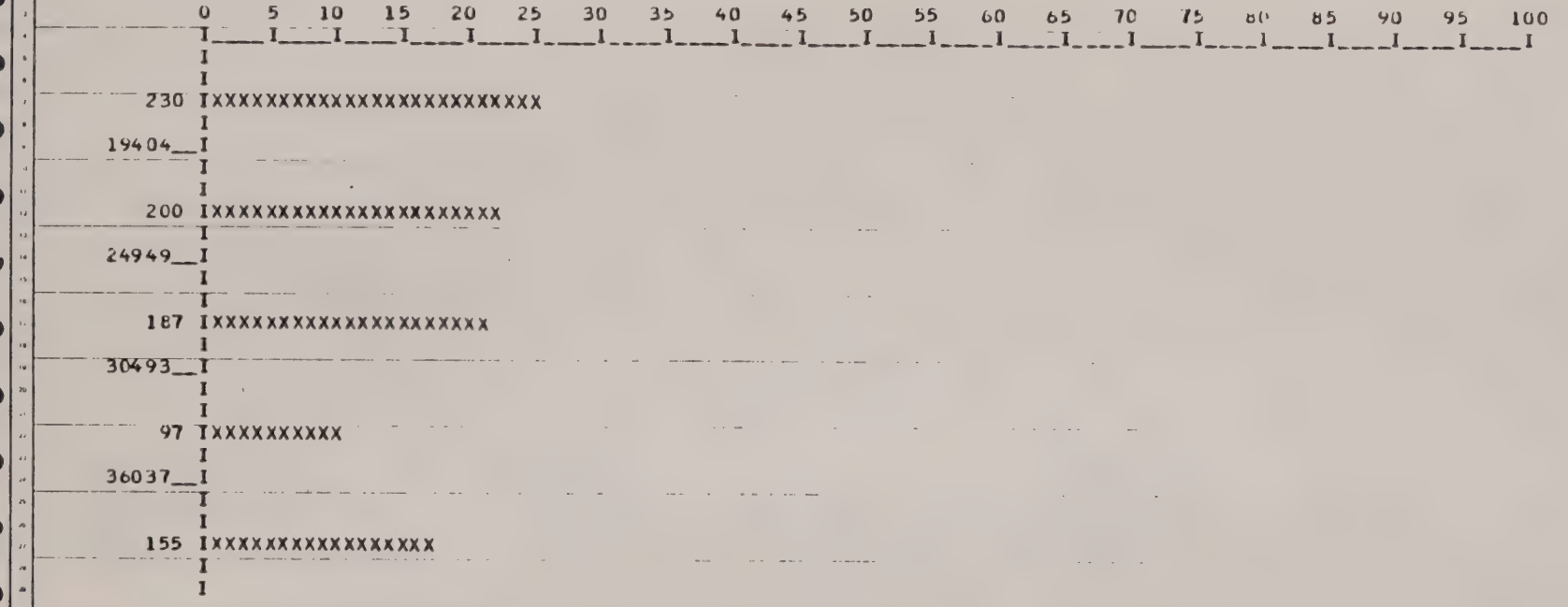
PERCENTAGES

```
          0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
          I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I____I
          I
          I
      211 IXXXXXXXXXXXXXXXXXXXXXX
          I
    0.167__I
          I
          I
      297 IXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
          I
    0.215__I
          I
          I
      165 IXXXXXXXXXXXXXXXXX
          I
    0.263__I
          I
          I
       75 IXXXXXXXX
          I
    0.311__I
          I
          I
      121 IXXXXXXXXXXXX
          I
          I
```

TOTAL VALID OBSERVATIONS :	869		ASSESSED VALUES	
RANGE :	0.008	2.000	200.000	36,000.000
MEAN A/S RATIO :	0.239		5,795.581	
STANDARD DEVIATION :	0.169		4,154.345	
MEAN WEIGHTED A/S RATIO :	0.209			
STANDARD DEVIATION :	0.095			
MEDIAN A/S RATIO :	0.200		5,000.000	
COEFFICIENT OF DISPERSION:	40.015			

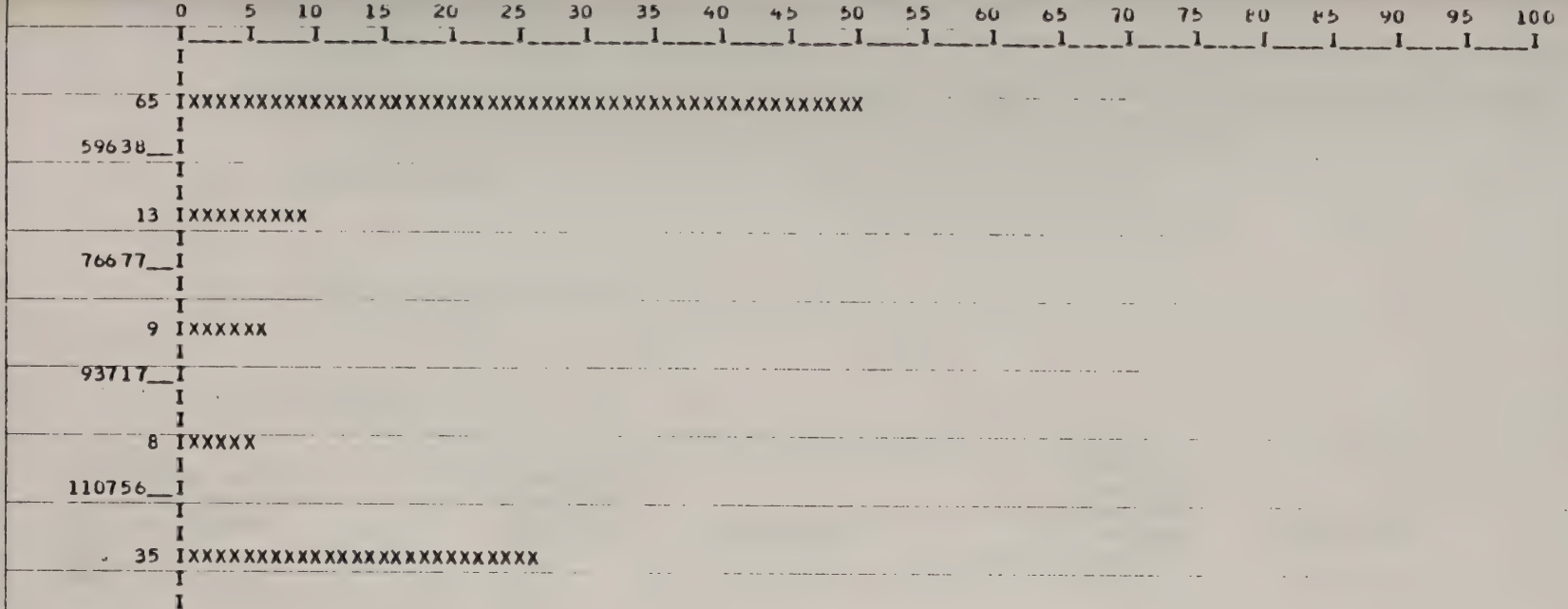
WARDS 1 - 22 CLASS: R1
1975 SALES PRICE

PERCENTAGES



TOTAL VALID OBSERVATIONS	:	869		ASSESSED VALUES	
RANGE	:	1,500.000	152,000.000	200.000	36,000.000
MEAN SALES PRICE	:	27,720.591		5,795.581	
STANDARD DEVIATION	:	17,179.658		4,154.345	
MEDIAN SALES PRIC	:	25,000.000		5,000.000	

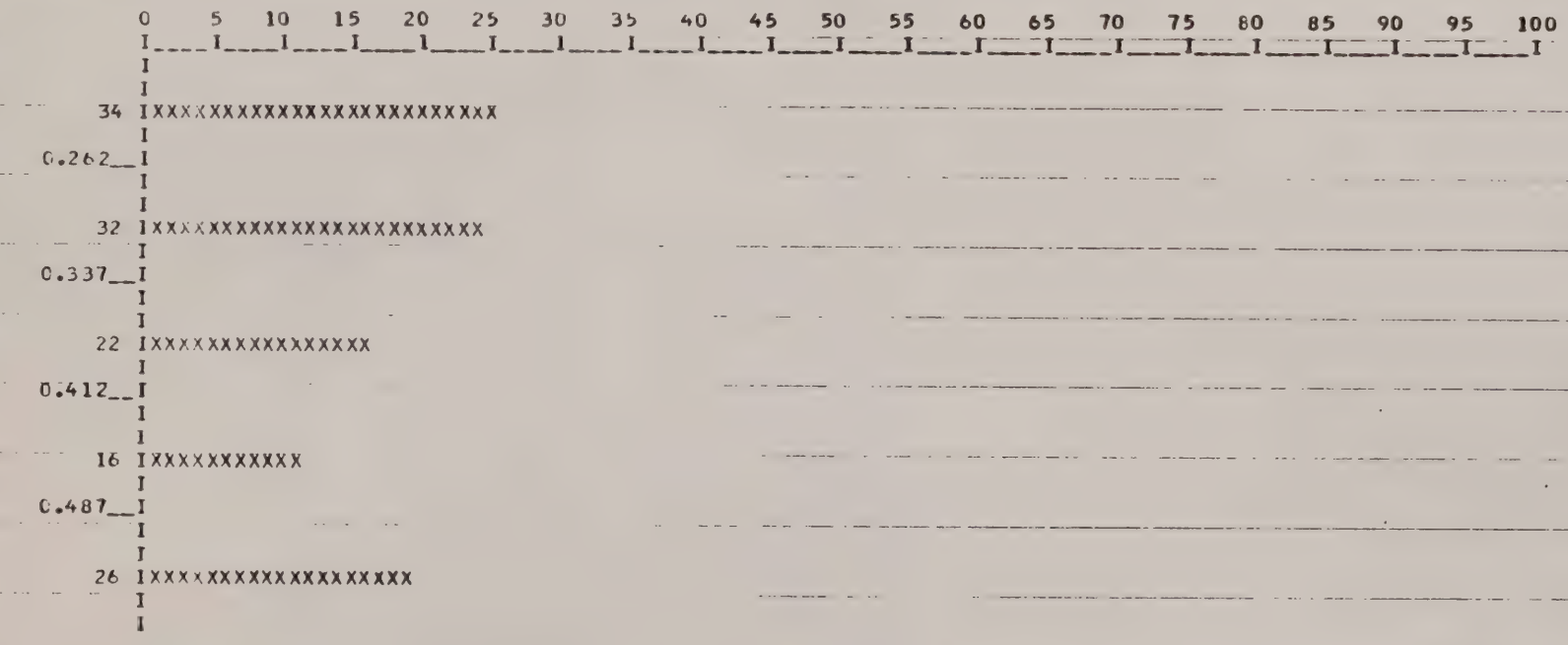
PERCENTAGES



TOTAL VALID OBSERVATIONS	:	130		ASSESSED VALUES	
RANGE	:	4,000.000	442,741.000	3,900.000	125,000.000
MEAN SALES PRICE	:	85,196.985		29,529.230	
STANDARD DEVIATION	:	75,157.898		27,586.599	
MEDIAN SALES PRIC	:	57,000.000		18,000.000	

WARDS 1 - 22 CLASS: R4
1975 ASSESSMENT SALES RATIO

PERCENTAGES



TOTAL VALID OBSERVATIONS	:	130		ASSESSED VALUES	
RANGE	:	0.049	1.313	3,900.000	125,000.000
MEAN A/S RATIO	:	0.375		29,529.230	
STANDARD DEVIATION	:	0.182		27,586.599	
MEAN WEIGHTED A/S RATIO	:	0.347			
STANDARD DEVIATION	:	0.144			
MEDIAN A/S RATI	:	0.332		18,000.000	
COEFFICIENT OF DISPERSION	:	38.837			

7. Property Tax Equalization Simulations for Boston and All Other Massachusetts Cities and Towns; MASSTAX, a Technical Report.

This is sample output from the computer program that simulated the effects of property tax equalization in Massachusetts communities. The analysis and interpretation of results is described in Volume II, Chapter 5. "Equilibrium" figures embody the assumptions of tax capitalization described in Volume I, Chapter 5 and Volume II, Chapter 3. "Initial Impact" figures are based strictly on "current" values.

The simulations were performed for 343 of the state's 351 cities and towns under the rules of 100 percent valuation and a number of classification alternatives, using Fiscal Year 1978 data. For the sake of brevity, only Boston and population group summaries for 100 percent equalization and Chapter 580 classification are presented here. Averages and totals are reported on separate pages. The effects of Chapter 580 classification were interpreted as the average for the two cases of "Personal Property Held Harmless" and "Personal Property Not Held Harmless".

100% Valuation

Single Tax Rate

CITY OR TOWN: 035 BOSTON 1978 LEVY: $441,311,000 AS PERCENT OF INCOME: 16.63 PER CAPITA INCOME: $4,157
LEVY SHORTFALL: $24

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$2,692,632,000	$0	$2,692,632,000	$75.10	100.00
	RC	$295,818,000	$0	$295,818,000	$75.10	100.00
	C	$1,722,916,000	$0	$1,722,916,000	$75.10	100.00
	I	$419,339,000	$0	$419,339,000	$75.10	100.00
	AH	$74,000	$0	$74,000	$75.10	100.00
	L	$273,694,000	$0	$273,694,000	$75.10	100.00
	P	$471,088,000	$0	$471,088,000	$75.10	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$2,352,543,000	$0	$2,352,543,000	$78.59	100.00
	RC	$259,465,000	$0	$259,465,000	$78.59	100.00
	C	$1,845,453,000	$0	$1,845,453,000	$78.59	100.00
	I	$469,595,000	$0	$469,595,000	$78.59	100.00
	AH	$139,000	$0	$139,000	$78.59	100.00
	L	$216,731,000	$0	$216,731,000	$78.59	100.00
	P	$471,088,000	$0	$471,088,000	$78.59	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000. ITERATIONS: 9

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	95851	31414	19612	16867	7720	2566	6070	1002	3	10597	0
AV/EV RATIO	29.69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$1745000	$169601	$112393	$101480	$209341	$63385	$631657	$169783	$74	$40325	$246961
EV	$5875561	$1056782	$604670	$420096	$611084	$295818	$1722916	$419339	$74	$273694	$471088
TAXES	$252.89	$42892	$28424	$25664	$52942	$16030	$159746	$42938	$18	$10198	$62456
100% TAXES	$75.10	$79373	$45416	$31552	$45897	$22218	$129406	$31496	$5	$20556	$35382
TAX CHANGE	$75909	$36481	$16991	$5888	$7044-	$6188	$30339-	$11441-	$13-	$10358	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
PLAN JA1 INITIAL											
ADJUSTED AV	$5875561	$1056782	$604670	$420096	$611084	$295818	$1722916	$419339	$74	$273694	$471088
NEW TAXES	$75.10	$79373	$45416	$31552	$45897	$22218	$129406	$31496	$5	$20556	$35382
TAX CHANGE	$75909	$36481	$16991	$5888	$7044-	$6188	$30339-	$11441-	$13-	$10358	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
TC (100%)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
% CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$5615015	$836813	$500069	$379827	$635831	$259465	$1845453	$469595	$138	$216730	$471088
NEW TAXES	$78.59	$65768	$39302	$29852	$49972	$20392	$145041	$36907	$10	$17033	$37024
TAX CHANGE	$49140	$22876	$10878	$4187	$2969-	$4362	$14704-	$6030-	$7-	$6835	$25431-
% CHANGE	11.13	53.33	36.27	16.31	-5.60	27.21	-9.20	-14.04	-41.65	67.02	-40.71
TC (INIT)	$26768	$13605-	$6113-	$1700-	$4074	$1826-	$15635	$5411	$5	$3523-	$1641
% CHANGE	6.06	-17.14	-13.46	-5.39	8.87	-8.21	12.08	17.18	96.45	-17.13	4.63

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO: 14 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (1978 YEAR AT 2.54) — DATE: 82/06/08

CITY OR TOWN: 035 BOSTON — 1978 LEVY: $441,311,000 — AS PERCENT OF INCOME: 16.63 — PER CAPITA INCOME: $4,157
LEVY SHORTFALL: $24

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$2,692,632,000	$0	$2,692,632,000	$75.10	100.00
	RC	$295,818,000	$0	$295,818,000	$75.10	100.00
	C	$1,722,916,000	$0	$1,722,916,000	$75.10	100.00
	I	$419,339,000	$0	$419,339,000	$75.10	100.00
	AH	$74,000	$0	$74,000	$75.10	100.00
	L	$273,694,000	$0	$273,694,000	$75.10	100.00
	P	$471,088,000	$0	$471,088,000	$75.10	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$2,352,543,000	$0	$2,352,543,000	$78.59	100.00
	RC	$259,465,000	$0	$259,465,000	$78.59	100.00
	C	$1,845,453,000	$0	$1,845,453,000	$78.59	100.00
	I	$469,595,000	$0	$469,595,000	$78.59	100.00
	AH	$139,000	$0	$139,000	$78.59	100.00
	L	$216,731,000	$0	$216,731,000	$78.59	100.00
	P	$471,088,000	$0	$471,088,000	$78.59	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES. — ITERATIONS: 9

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	95851	31414	19612	16867	7720	2566	6070	1002	3	10597	0
AV/EV RATIO	29.69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$1745000	$5398	$5730	$6016	$27116	$24701	$104062	$169444	$24666	$3805	$246961
EV	$5875561	$33640	$30831	$24906	$79155	$115283	$283841	$418501	$24666	$25827	$471088
TAXES	$2192.89	$1365	$1449	$1521	$6857	$6247	$26317	$42852	$6238	$962	$62456
100% TAXES	$75.10	$2526	$2315	$1870	$5945	$8658	$21319	$31433	$1852	$1939	$35382
TAX CHANGE	$75909	$1161	$866	$349	$912-	$2411	$4998-	$11419-	$4385-	$977	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
PLAN JA1 INITIAL											
ADJUSTED AV	$5875561	$33640	$30831	$24906	$79155	$115283	$283841	$418501	$24666	$25827	$471088
NEW TAXES	$75.10	$2526	$2315	$1870	$5945	$8658	$21319	$31433	$1852	$1939	$35382
TAX CHANGE	$75909	$1161	$866	$349	$912-	$2411	$4998-	$11419-	$4385-	$977	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
TC (100%)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
% CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$5615015	$26036	$25498	$22518	$82361	$101116	$304028	$468657	$46313	$20452	$471088
NEW TAXES	$78.59	$2093	$2004	$1769	$6473	$7947	$23894	$36833	$3639	$1607	$37024
TAX CHANGE	$49140	$726	$554	$248	$384-	$1700	$2422-	$6018-	$2598-	$645	$25431-
% CHANGE	11.13	53.33	38.27	16.31	-5.60	27.21	-9.20	-14.04	-41.65	67.02	-40.71
TC (INIT)	$26768	$433-	$311-	$100-	$527	$711-	$2575	$5400	$1787	$332-	$1641
% CHANGE	6.06	-17.14	-13.46	-5.39	8.87	-8.21	12.08	17.18	96.45	-17.13	4.63

CITY OR TOWN: CITIES >= 50,000 — 1978 LEVY: $1,296,762,000 — AS PERCENT OF INCOME: 9.52 — PER CAPITA INCOME: $1,692
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 22; AT OR BELOW 2.5%: 0

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$14,808,078,000	$0	$14,808,078,000	$56.14	100.00
	RC	$453,539,000	$0	$453,539,000	$56.14	100.00
	C	$4,040,462,000	$0	$4,040,462,000	$56.14	100.00
	I	$1,346,849,000	$0	$1,346,849,000	$56.14	100.00
	AH	$1,235,000	$0	$1,235,000	$56.14	100.00
	L	$778,031,000	$0	$778,031,000	$56.14	100.00
	P	$1,315,910,000	$0	$1,315,910,000	$56.14	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$13,754,796,000	$0	$13,754,796,000	$59.65	100.00
	RC	$423,038,000	$0	$423,038,000	$59.65	100.00
	C	$4,340,619,000	$0	$4,340,619,000	$59.65	100.00
	I	$1,537,124,000	$0	$1,537,124,000	$59.65	100.00
	AH	$1,350,000	$0	$1,350,000	$59.65	100.00
	L	$653,732,000	$0	$653,732,000	$59.65	100.00
	P	$1,315,910,000	$0	$1,315,910,000	$59.65	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250381	79008	46478	25706	6377	25066	4309	19	57017	0
AV/EV RATIO	38.49	32.65	26.41	30.66	43.37	30.56	47.07	54.72	88.09	22.39	67.23
AV	$8755474	$2921813	$741890	$375915	$877868	$138645	$1902151	$737069	$1090	$174236	$864767
EV	$22744103	$8947524	$2811346	$1225235	$2023971	$453538	$4040461	$1346848	$1235	$778031	$1315909
TAXES	$148.10	$345514	$115597	$67177	$130904	$26099	$319341	$116575	$84	$26149	$149312
100% TAXES	$57.01	$461540	$149484	$76262	$117995	$31047	$253721	$79027	$62	$47865	$77713
TAX CHANGE +	$192392	$116026	$34036	$12205	$1373	$6793	$0	$0	$0	$21956	$0
TAX CHANGE -	$192402-	$149-	$1121-	$14283-	$1845-	$6561-	$37548-	$21-	$221-	$71996-	
NET % CHANGE	14.83	33.58	29.31	16.49	-9.66	18.95	-20.54	-32.20	-26.08	83.12	-47.95
PLAN JA1 INITIAL											
ADJUSTED AV	$22744103	$8947524	$2611346	$1225235	$2023971	$453538	$4040461	$1346848	$1235	$778031	$1315909
NEW TAXES	$57.01	$461540	$149484	$76262	$117995	$31047	$253721	$79027	$62	$47865	$77713
TAX CHANGE +	$192392	$116026	$34036	$12205	$1373	$6793	$0	$0	$0	$21956	$0
TAX CHANGE -	$192402-	$0	$149-	$1121-	$14283-	$1845-	$6561-	$37548-	$21-	$221-	$71996-
NET % CHANGE	14.83	33.58	29.31	16.49	-9.66	18.95	-20.54	-32.20	-26.08	83.12	-47.95
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$22026566	$8165534	$2387877	$1141515	$2268906	$422037	$4340611	$1537123	$1350	$653731	$1315909
NEW TAXES	$58.87	$426841	$139785	$70877	$129512	$29759	$283322	$93742	$70	$41165	$86767
TAX CHANGE +	$136067	$81326	$24212	$5210	$1391	$4778	$0	$0	$0	$15661	$0
TAX CHANGE -	$136078-	$0	$94-	$5319-	$10783-	$1112-	$56611-	$22832-	$13-	$145-	$68544-
NET % CHANGE	10.49	23.53	20.92	12.95	-4.11	14.12	-11.27	-15.58	-16.45	57.03	-45.90
TC (INIT) +	$56665	$0	$157	$815	$7725	$719	$29593	$14715	$8	$19	$3094
TC (INIT) -	$56667-	$34699-	$9859-	$2499-	$1208-	$1006-	$0	$0	$0	$8695-	$0
NET % CHANGE	4.36	-7.51	-6.48	-3.04	6.37	-4.14	11.00	18.62	13.02	-14.49	5.93

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 4 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (ZEROTH YEAR AT 2.5%) — UNEHUN — DATE: 78/10/16

CITY OR TOWN: CITIES >= 50,000 — 1978 LEVY: $1,296,762,000 — AS PERCENT OF INCOME: 4.52 — PER CAPITA INCOME: $5,692
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 22; AT OR BELOW 2.5%: 0

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$14,806,076,000	$0	$14,806,076,000	$58.14	100.00
	RC	$453,539,000	$0	$453,539,000	$58.14	100.00
	C	$4,040,462,000	$0	$4,040,462,000	$58.14	100.00
	I	$1,346,849,000	$0	$1,346,849,000	$58.14	100.00
	AH	$1,235,000	$0	$1,235,000	$58.14	100.00
	L	$778,031,000	$0	$778,031,000	$58.14	100.00
	P	$1,315,910,000	$0	$1,315,910,000	$58.14	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$13,754,796,000	$0	$13,754,796,000	$59.65	100.00
	RC	$423,038,000	$0	$423,038,000	$59.65	100.00
	C	$4,340,619,000	$0	$4,340,619,000	$59.65	100.00
	I	$1,537,124,000	$0	$1,537,124,000	$59.65	100.00
	AH	$1,350,000	$0	$1,350,000	$59.65	100.00
	L	$653,732,000	$0	$653,732,000	$59.65	100.00
	P	$1,315,910,000	$0	$1,315,910,000	$59.65	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./FOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250311	79008	48476	25706	6377	25066	4339	19	57087	0
AV/EV RATIO	38.49	32.65	28.41	30.68	43.37	30.56	47.07	54.72	26.89	22.39	67.23
AV	$6755474	$11069	$9390	$7754	$34150	$21741	$75885	$171053	$57789	$3052	$884787
EV	$22744103	$35735	$33051	$25275	$78735	$71121	$161192	$312566	$65010	$13628	$1315909
TAXES	$148.10	$1379	$1463	$1315	$5092	$4092	$12746	$27054	$4423	$456	$149312
100% TAXES	$57.01	$1843	$1892	$1614	$4590	$4068	$10122	$18340	$3269	$838	$77713
TAX CHANGE +	$192392	$463	$430	$251	$53	$1065	$0	$0	$0	$384	$0
TAX CHANGE -	$192402-	$0	$1-	$23-	$555-	$289-	$2617-	$8714-	$1153-	$3-	$71596-
NET % CHANGE	14.83	33.58	29.31	16.49	-9.86	16.95	-20.54	-32.20	-26.06	83.12	-47.95
PLAN JA1 INITIAL											
ADJUSTED AV	$22744103	$35735	$33051	$25275	$78735	$71121	$161192	$312566	$65010	$13628	$1315909
NEW TAXES	$57.01	$1843	$1892	$1614	$4590	$4068	$10122	$18340	$3269	$838	$77713
TAX CHANGE +	$192392	$463	$430	$251	$53	$1065	$0	$0	$0	$384	$0
TAX CHANGE -	$192402-	$0	$1-	$23-	$555-	$289-	$2617-	$8714-	$1153-	$3-	$71596-
NET % CHANGE	14.83	33.58	29.31	16.49	-9.86	16.95	-20.54	-32.20	-26.06	83.12	-47.95
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$22026568	$32612	$30107	$23849	$80483	$66331	$173167	$256774	$71074	$11451	$1315909
NEW TAXES	$56.87	$1774	$1769	$1565	$4782	$3960	$11305	$21755	$3695	$719	$80707
TAX CHANGE +	$136067	$324	$307	$190	$54	$1791	$0	$0	$0	$203	$0
TAX CHANGE -	$136076-	$0	$1-	$10-	$703-	$117-	$1438-	$5298-	$726-	$2-	$68544-
NET % CHANGE	10.49	23.53	20.97	12.45	-4.11	14.03	-11.27	-19.58	-10.45	97.03	-45.96
TC (INIT) +	$56665	$0	$1	$42	$300	$111	$1181	$3415	$0	$1	$0

MASSACHUSETTS PROPERTY TAX SUMMARY: 197E BASE DATA — PAGE NO. : — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (ZEROTH YEAR AT 2.5%) — UNEMON — DATE: 76/10/16

CITY OR TOWN: CITIES: 25,000-50,000 — 197E LEVY: $659,607,000 — AS PERCENT OF INCOME: 8.30 — PER CAPITA INCOME: $8,211
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 39; AT OR BELOW 2.5%: 2

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$13,601,450,000	$0	$13,601,450,000	$38.43	100.00
	RC	$172,099,000	$0	$172,099,000	$38.43	100.00
	C	$2,089,420,000	$0	$2,089,420,000	$38.43	100.00
	I	$1,386,633,000	$0	$1,386,633,000	$38.43	100.00
	AH	$3,098,000	$0	$3,098,000	$38.43	100.00
	L	$678,287,000	$0	$678,287,000	$38.43	100.00
	P	$986,599,000	$0	$986,599,000	$38.43	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$13,177,584,000	$0	$13,177,584,000	$38.46	100.00
	RC	$181,432,000	$0	$181,432,000	$38.46	100.00
	C	$2,173,421,000	$0	$2,173,421,000	$38.46	100.00
	I	$1,511,069,000	$0	$1,511,069,000	$38.46	100.00
	AH	$3,803,000	$0	$3,803,000	$38.46	100.00
	L	$643,280,000	$0	$643,280,000	$38.46	100.00
	P	$986,599,000	$0	$986,599,000	$38.46	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./NON. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	6326	6815	3051	13096	3537	498	8818	0
AV/EV RATIO	44.97	41.42	36.75	36.39	46.93	49.05	56.50	56.02	89.12	41.66	57.55
AV	$8507864	$4644815	$498623	$112187	$347349	$84431	$1180270	$785231	$2761	$283945	$567852
EV	$18917586	$11212436	$1356771	$292172	$740070	$172099	$2089419	$1386632	$3097	$678287	$986599
TAXES	$77.45	$334385	$46256	$11112	$29261	$6622	$80037	$71195	$197	$18094	$38039
100% TAXES	$34.83	$380521	$54825	$12382	$28342	$6748	$71601	$49971	$91	$21278	$33255
TAX CHANGE +	$63954	$46175	$8820	$1805	$1392	$7	$67	$24	$0	$3660	$0
TAX CHANGE -	$63958-	$40-	$252-	$555-	$2311-	$1685-	$14498-	$21247-	$105-	$476-	$22763-
NET % CHANGE	9.70	13.79	18.52	11.24	-3.14	-19.91	-10.77	-29.80	-53.52	3.40	-40.65
PLAN JA1 INITIAL											
ADJUSTED AV	$18917586	$11212436	$1356771	$292172	$740070	$172099	$2089419	$1386632	$3097	$678287	$986599
NEW TAXES	$34.83	$380521	$54825	$12382	$28342	$6748	$71601	$49971	$91	$21278	$33255
TAX CHANGE +	$63954	$46175	$8820	$1805	$1392	$7	$67	$24	$0	$3660	$0
TAX CHANGE -	$63958-	$40-	$252-	$555-	$2311-	$1685-	$14498-	$21247-	$105-	$476-	$22763-
NET % CHANGE	9.70	13.79	18.52	11.24	-3.14	-19.91	-10.77	-29.80	-53.52	3.40	-40.65
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$18677108	$10866569	$1292912	$281947	$743153	$181431	$2173421	$1511069	$3802	$643280	$986599
NEW TAXES	$35.28	$370582	$52198	$12211	$28891	$7330	$75958	$56022	$113	$22695	$34012
TAX CHANGE +	$50689	$36020	$8796	$1950	$1197	$37	$182	$525	$1	$4918	$1
TAX CHANGE -	$50696-	$24-	$154-	$212-	$1567-	$111.7-	$1618-	$14957-	$104-	$1361-	$22028-
NET % CHANGE	7.69	10.94	14.35	10.50	-1.06	-1.00 %	-1.71	-2.67	-4.75	6.16	-5.56
TC (INIT) +	$13369	$16	$114	$1.76	$791	$357	$3435	$2691	$21	$176	$756
TC (INIT) -	$13371-	$9554-	$2148-	$339-	$249-	$1	$0	$0	$0	$1161-	$0
NET % CHANGE	2.32	-2.50	-3.51	-1.00	1.93	0.47	0.17	12.98	23.15	-4.01	2.27

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 6 — PREPARED BY: TAX EQUITY STUDY GROUP
ALL CITIES AND TOWNS (ZERO-TH YEAR AT 2.5%) — UNION — DATE: 78/10/18

CITY OR TOWN: CITIES: 25,000-50,000 — 1978 LEVY: $659,007,000 — AS PERCENT OF INCOME: 5.30 — PER CAPITA INCOME: $6,211
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 39; AT OR BELOW 2.5%: 2

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$13,601,450,000	$0	$13,601,450,000	$38.43	100.00
	RC	$172,999,000	$0	$172,999,000	$38.43	100.00
	C	$2,089,420,000	$0	$2,089,420,000	$38.43	100.00
	I	$1,388,633,000	$0	$1,388,633,000	$38.43	100.00
	AH	$3,098,000	$0	$3,098,000	$38.43	100.00
	L	$678,287,000	$0	$678,287,000	$38.43	100.00
	P	$986,599,000	$0	$986,599,000	$38.43	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$13,177,584,000	$0	$13,177,584,000	$38.46	100.00
	RC	$181,432,000	$0	$181,432,000	$38.46	100.00
	C	$2,173,421,000	$0	$2,173,421,000	$38.46	100.00
	I	$1,511,069,000	$0	$1,511,069,000	$38.46	100.00
	AH	$3,803,000	$0	$3,803,000	$38.46	100.00
	L	$643,280,000	$0	$643,280,000	$38.46	100.00
	P	$986,599,000	$0	$986,599,000	$38.46	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	8326	6815	3051	13090	3557	298	80818	0
AV/EV RATIO	44.97	41.42	36.75	38.39	46.93	49.05	56.50	56.62	69.12	41.86	57.55
AV	$8507864	$18423	$14250	$13474	$50968	$27673	$90196	$222004	$9265	$3513	$5678??
EV	$18917586	$44474	$36774	$35091	$108594	$56407	$159619	$392036	$10395	$8392	$986599
TAXES	$77.45	$1326	$1321	$1334	$4293	$2761	$6572	$20128	$664	$199	$56639
100% TAXES	$34.83	$1509	$1566	$1484	$4158	$2211	$5469	$14128	$506	$263	$33255
TAX CHANGE +	$63954	$183	$252	$216	$204	$2	$5	$6	$0	$70	$0
TAX CHANGE -	$63958-	$0	$7-	$66-	$339-	$552-	$1107-	$6007-	$355-	$5-	$22783-
NET % CHANGE	9.70	13.79	18.52	11.24	-3.14	-19.91	-16.77	-29.80	-53.52	32.20	-40.65
PLAN JA1 INITIAL											
ADJUSTED AV	$18917586	$44474	$38774	$35091	$108594	$56407	$159619	$392036	$10395	$8392	$986599
NEW TAXES	$34.83	$1509	$1566	$1484	$4158	$2211	$5469	$14128	$506	$263	$33255
TAX CHANGE +	$63954	$183	$252	$216	$204	$2	$5	$6	$0	$70	$0
TAX CHANGE -	$63958-	$0	$7-	$66-	$339-	$552-	$1107-	$6007-	$355-	$5-	$22783-
NET % CHANGE	9.70	13.79	18.52	11.24	-3.14	-19.91	-16.77	-29.80	-53.52	32.20	-40.65
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$18677??	$43079	$36949	$33743	$119046	$55400	$160036	$427217	$12761	$7959	$986599
NEW TAXES	$35.28	$1471	$1511	$1474	$4239	$2394	$5902	$15910	$581	$291	$34112
TAX CHANGE +	$50689	$145	$194	$174	$175	$2	$4	$7	$0	$55	$0
TAX CHANGE -	$50696-	$0	$4-	$33-	$329-	$369-	$1774-	$4226-	$283-	$3-	$22626-
NET % CHANGE	7.69	10.94	14.35	10.50	-1.26	-13.23	-11.71	-22.97	-42.75	20.12	-37.38
TC (INIT) +	$13369	$0	$3	$33	$117	$182	$332	$1778	$71	$2	$7??

CITY OR TOWN: TOWNS: 10,000-25,000 — 1978 LEVY: $671,466,000 — AS PERCENT OF INCOME: 7.85 — PER CAPITA INCOME: $8,254
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 87; AT OR BELOW 2.5%: 7

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$16,276,264,000	$0	$16,278,264,000	$16.92	100.00
	RC	$240,542,000	$0	$240,542,000	$16.92	100.00
	C	$1,776,919,000	$0	$1,776,919,000	$16.92	100.00
	I	$1,100,349,000	$0	$1,100,349,000	$16.92	100.00
	AH	$27,572,000	$0	$27,572,000	$16.92	100.00
	L	$1,046,202,000	$0	$1,046,202,000	$16.92	100.00
	P	$967,331,000	$0	$967,331,000	$16.92	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$16,114,097,000	$0	$16,114,097,000	$16.93	100.00
	RC	$245,407,000	$0	$245,407,000	$16.93	100.00
	C	$1,821,827,000	$0	$1,821,827,000	$16.93	100.00
	I	$1,152,412,000	$0	$1,152,412,000	$16.93	100.00
	AH	$30,036,000	$0	$30,036,000	$16.93	100.00
	L	$986,588,000	$0	$986,588,000	$16.93	100.00
	P	$967,331,000	$0	$967,331,000	$16.93	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	338664	22102	3926	4294	4018	17259	2950	1161	116211	0
AV/EV RATIO	56.21	54.17	52.63	53.07	59.81	61.66	63.44	64.97	69.12	41.62	78.20
AV	$12050661	$7952309	$425504	$80789	$382855	$148336	$1127376	$714925	$24574	$437534	$756459
EV	$21437179	$14677586	$808359	$152220	$640097	$240542	$1776919	$1100348	$27571	$1046202	$967331
TAXES	$55.71	$43851	$2597	$549	$2421	$1003	$6335	$4337	$187	$2022	$1617
100% TAXES	$31.32	$45900	$2681	$515	$2077	$780	$5614	$3516	$81	$1843	$2726
TAX CHANGE +	$32455	$2070	$134	$33	$28	$11	$50	$8	$0	$989	$0
TAX CHANGE -	$32460-	$550-	$502-	$221-	$1927-	$1908-	$1714-	$8303-	$374-	$208-	$11690-
NET % CHANGE	4.83	4.59	3.25	2.15	-7.34	-9.27	-11.38	-18.94	-31.50	38.31	-29.50
PLAN JA1 INITIAL											
ADJUSTED AV	$21437179	$14677586	$808359	$152220	$640097	$240542	$1776919	$1100348	$27571	$1046202	$967331
NEW TAXES	$31.32	$45900	$2681	$515	$2077	$780	$5614	$3516	$81	$1843	$2726
TAX CHANGE +	$32455	$2070	$134	$33	$28	$11	$50	$8	$0	$989	$0
TAX CHANGE -	$32460-	$550-	$502-	$221-	$1927-	$1908-	$1714-	$8303-	$374-	$208-	$11690-
NET % CHANGE	4.83	4.59	3.25	2.15	-7.34	-9.27	-11.38	-18.94	-31.50	38.31	-29.50
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$21318098	$14512178	$800185	$151115	$649917	$245407	$1821827	$1152412	$30035	$986917	$967331
NEW TAXES	$31.49	$45605	$2674	$516	$2124	$803	$5796	$3701	$89	$1830	$2802
TAX CHANGE +	$27123	$1757	$111	$26	$25	$9	$42	$9	$1	$730	$0
TAX CHANGE -	$27131-	$370-	$334-	$153-	$1431-	$1677-	$5012-	$6339-	$295-	$197-	$11517-
NET % CHANGE	4.03	3.92	2.99	2.27	-5.25	-6.78	-6.50	-14.40	-24.90	30.66	-29.07
TC (INIT) +	$5540	$342	$181	$69	$504	$232	$1904	$1981	$178	$71	$172
TC (INIT) -	$5542-	$3254-	$245-	$63-	$37-	$11-	$8.-	$10-	$0	$1706-	$0
NET % CHANGE	0.82	-0.64	-0.25	0.11	2.25	2.74	3.24	5.66	9.03	-5.36	0.61

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 8 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (ZEROTH YEAR AT 2.5%) — ONEHUN — DATE: 78/10/16

CITY OR TOWN: TOWNS: 10,000-25,000 — 1978 LEVY: $671,466,000 — AS PERCENT OF INCOME: 7.85 — PER CAPITA INCOME: $8,204
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 67; AT OR BELOW 2.5%: 7

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$16,278,264,000	$0	$16,278,264,000	$16.92	100.00
	RC	$240,542,000	$0	$240,542,000	$16.92	100.00
	C	$1,776,919,000	$0	$1,776,919,000	$16.92	100.00
	I	$1,100,349,000	$0	$1,100,349,000	$16.92	100.00
	AH	$27,572,000	$0	$27,572,000	$16.92	100.00
	L	$1,046,202,000	$0	$1,046,202,000	$16.92	100.00
	P	$967,331,000	$0	$967,331,000	$16.92	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$16,114,097,000	$0	$16,114,097,000	$16.93	100.00
	RC	$245,407,000	$0	$245,407,000	$16.93	100.00
	C	$1,821,627,000	$0	$1,821,627,000	$16.93	100.00
	I	$1,152,412,000	$0	$1,152,412,000	$16.93	100.00
	AH	$30,036,000	$0	$30,036,000	$16.93	100.00
	L	$986,988,000	$0	$986,988,000	$16.93	100.00
	P	$967,331,000	$0	$967,331,000	$16.93	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY = X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	338664	22102	3926	4294	4016	17259	2950	1166	110218	0
AV/EV RATIO	56.21	54.17	52.63	53.07	59.81	61.66	63.44	64.97	89.12	41.82	78.26
AV	$12050661	$23481	$19251	$20567	$89160	$36917	$65321	$242347	$21039	$3774	$756459
EV	$21437179	$43339	$36574	$38752	$149067	$59866	$102956	$372999	$23606	$9002	$967331
TAXES	$55.71	$1295	$1175	$1285	$5221	$2141	$3671	$14704	$1116	$198	$39617
100% TAXES	$31.32	$1355	$1213	$1313	$4838	$1942	$3253	$11918	$696	$273	$27926
TAX CHANGE +	$32455	$61	$60	$84	$65	$27	$29	$28	$0	$78	$0
TAX CHANGE -	$32460-	$1-	$22-	$56-	$448-	$226-	$446-	$2814-	$320-	$2-	$11690-
NET % CHANGE	4.83	4.59	3.25	2.15	-7.34	-9.27	-11.38	-18.94	-31.50	38.31	-29.50
PLAN JA1 INITIAL											
ADJUSTED AV	$21437179	$43339	$36574	$38752	$149067	$59866	$102956	$372999	$23606	$9002	$967331
NEW TAXES	$31.32	$1355	$1213	$1313	$4838	$1942	$3253	$11918	$696	$273	$27926
TAX CHANGE +	$32455	$61	$60	$84	$65	$27	$29	$28	$0	$78	$0
TAX CHANGE -	$32460-	$1-	$22-	$56-	$448-	$226-	$446-	$2814-	$320-	$2-	$11690-
NET % CHANGE	4.83	4.59	3.25	2.15	-7.34	-9.27	-11.38	-18.94	-31.50	38.31	-29.50
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$21318098	$42851	$36235	$38471	$151354	$61078	$105558	$390648	$25715	$8492	$967331
NEW TAXES	$31.49	$1346	$1210	$1314	$4947	$1995	$3358	$12306	$763	$259	$28099
TAX CHANGE +	$27123	$51	$50	$69	$154	$123	$124	$131	$0	$62	$0
TAX CHANGE -	$27131-	$1-	$15-	$39-	$333-	$168-	$338-	$2148-	$253-	$1-	$11517-
NET % CHANGE	4.03	3.92	2.99	2.27	-5.25	-6.78	-6.50	-14.40	-24.96	38.86	-29.67
TC (INIT) +	$5540	$1	$8	$17	$117	$57	$111	$3671	$67	$0	$172
TC (INIT) -	$5546-	$0-	$11-	$23-	$115-	$57-	$108-	$3671-	$67-	$0-	$172-

CITY OR TOWN: TOWNS < 10,000 — 1978 LEVY: $332,923,000 — AS PERCENT OF INCOME: 7.90 — PER CAPITA INCOME: $5,616
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 195; AT OR BELOW 2.5%: 92

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$10,372,417,000	$0	$10,372,417,000	$32.50	100.00
	RC	$285,706,000	$0	$285,706,000	$32.50	100.00
	C	$848,583,000	$0	$848,583,000	$32.50	100.00
	I	$667,539,000	$0	$667,539,000	$32.50	100.00
	AH	$34,597,000	$0	$34,597,000	$32.50	100.00
	L	$1,379,815,000	$0	$1,379,815,000	$32.50	100.00
	P	$769,099,000	$0	$769,099,000	$32.50	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$10,290,705,000	$0	$10,290,705,000	$32.55	100.00
	RC	$289,569,000	$0	$289,569,000	$32.55	100.00
	C	$864,175,000	$0	$864,175,000	$32.55	100.00
	I	$686,939,000	$0	$686,939,000	$32.55	100.00
	AH	$40,678,000	$0	$40,678,000	$32.55	100.00
	L	$1,339,149,000	$0	$1,339,149,000	$32.55	100.00
	P	$769,099,000	$0	$769,099,000	$32.55	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	389090	227109	10658	1845	2223	4474	9451	1895	2240	129118	0
AV/EV RATIO	58.18	56.49	52.55	53.63	60.32	61.55	64.31	73.66	69.12	52.16	70.51
AV	$8354240	$5397651	$250323	$48514	$151450	$175863	$545761	$491746	$30834	$719760	$542298
EV	$14357756	$9554578	$476313	$90449	$251075	$285705	$848583	$667539	$34596	$1379815	$769099
TAXES	$39.84	$217385	$11561	$2195	$6393	$7039	$22920	$17891	$1828	$21126	$24575
100% TAXES	$23.18	$226457	$12039	$2254	$6125	$6422	$20478	$14861	$905	$20902	$16467
TAX CHANGE +	$17800	$10146	$781	$149	$218	$135	$199	$46	$0	$6106	$45
TAX CHANGE -	$17803-	$10754-	$303-	$90-	$486-	$722-	$2641-	$3076-	$923-	$330-	$8154-
NET % CHANGE	5.34	4.17	4.13	2.68	-4.18	-8.75	-10.65	-16.93	-50.51	27.34	-32.99
PLAN JA1 INITIAL											
ADJUSTED AV	$14357756	$9554578	$476313	$90449	$251075	$285705	$848583	$667539	$34596	$1379815	$769099
NEW TAXES	$23.18	$226457	$12039	$2254	$6125	$6422	$20478	$14861	$905	$20902	$16467
TAX CHANGE +	$17800	$10146	$781	$149	$218	$135	$199	$46	$0	$6106	$45
TAX CHANGE -	$17803-	$10754-	$303-	$90-	$486-	$722-	$2641-	$3076-	$923-	$330-	$8154-
NET % CHANGE	5.34	4.17	4.13	2.68	-4.18	-8.75	-10.65	-16.93	-50.51	27.34	-32.99
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$14280314	$9476240	$471972	$89882	$252608	$289569	$864174	$686939	$40677	$1339149	$769099
NEW TAXES	$23.31	$225535	$12013	$2254	$6208	$6579	$21049	$15563	$1099	$26006	$16008
TAX CHANGE +	$15475	$8959	$674	$128	$195	$344	$184	$43	$0	$5148	$45
TAX CHANGE -	$15479-	$1810-	$223-	$87-	$379-	$1053-	$2570-	$729-	$1-	$206-	$8017-
NET % CHANGE	4.64	3.74	3.90	2.67	-2.87	-8.16	-13.01	-39.91	23.21	-32.41	
TC (INIT) +	$2404	$314	$91	$23	$117	$161	$591	$765	$194	$163	$141
TC (INIT) -	$2404-	$1236-	$116-	$23-	$33-	$1-	$19-	$3-	$0	$960-	$0
NET % CHANGE	0.72	-0.40	-4.22	0.00	1.36	2.37	2.71	4.72	21.44	-5.33	0.83

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 10 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (ZEROTH YEAR AT 2.5%) — BOSTON — DATE: 78/10/16

CITY OR TOWN: TOWNS < 10,000 — 1978 LEVY: $332,923,000 — AS PERCENT OF INCOME: 7.90 — PER CAPITA INCOME: $5,116
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 195; AT OR BELOW 2.5%: 92

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$10,372,417,000	$0	$10,372,417,000	$32.50	100.00
	RC	$265,706,000	$0	$265,706,000	$32.50	100.00
	C	$846,583,000	$0	$846,583,000	$32.50	100.00
	I	$667,539,000	$0	$667,539,000	$32.50	100.00
	AH	$34,597,000	$0	$34,597,000	$32.50	100.00
	L	$1,379,815,000	$0	$1,379,815,000	$32.50	100.00
	P	$769,099,000	$0	$769,099,000	$32.50	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$10,290,705,000	$0	$10,290,705,000	$32.55	100.00
	RC	$289,569,000	$0	$289,569,000	$32.55	100.00
	C	$864,175,000	$0	$864,175,000	$32.55	100.00
	I	$686,939,000	$0	$686,939,000	$32.55	100.00
	AH	$40,676,000	$0	$40,676,000	$32.55	100.00
	L	$1,339,149,000	$0	$1,339,149,000	$32.55	100.00
	P	$769,099,000	$0	$769,099,000	$32.55	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	369090	227109	10650	1845	2223	4474	9451	1695	2240	129188	0
AV/EV RATIO	58.16	56.49	52.55	53.63	60.32	61.55	64.31	73.66	89.12	52.16	70.51
AV	$8354240	$23786	$23486	$26254	$68128	$39307	$57705	$259496	$13765	$5571	$542291
EV	$14357756	$42070	$44690	$49024	$112944	$63859	$89721	$352263	$15444	$10680	$769099
TAXES	$39.84	$957	$1084	$1192	$2675	$1573	$2423	$9441	$416	$163	$24575
100% TAXES	$23.18	$997	$1129	$1222	$2755	$1435	$2165	$7842	$404	$206	$16467
TAX CHANGE +	$17800	$44	$73	$81	$98	$23	$21	$24	$0	$47	$45
TAX CHANGE -	$17803-	$4-	$28-	$49-	$218-	$161-	$279-	$1623-	$412-	$2-	$8154-
NET % CHANGE	5.34	4.17	4.13	2.68	-4.18	-8.75	-10.65	-16.93	-50.51	27.34	-32.99
PLAN JA1 INITIAL											
ADJUSTED AV	$14357756	$42070	$44690	$49024	$112944	$63859	$89721	$352263	$15444	$10680	$769099
NEW TAXES	$23.18	$997	$1129	$1222	$2755	$1435	$2165	$7842	$404	$206	$16467
TAX CHANGE +	$17800	$44	$73	$81	$98	$23	$21	$24	$0	$47	$45
TAX CHANGE -	$17803-	$4-	$28-	$49-	$218-	$161-	$279-	$1623-	$412-	$2-	$8154-
NET % CHANGE	5.34	4.17	4.13	2.68	-4.18	-8.75	-10.65	-16.93	-50.51	27.34	-32.99
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$14260314	$41725	$44283	$48717	$113634	$64722	$91369	$362500	$18159	$10565	$769099
NEW TAXES	$23.31	$993	$1127	$1221	$2793	$1469	$2225	$8212	$490	$211	$16668
TAX CHANGE +	$15475	$39	$63	$68	$88	$22	$19	$22	$0	$39	$45
TAX CHANGE -	$15479-	$3-	$20-	$36-	$170-	$112-	$217-	$1291-	$325-	$2-	$6017-
NET % CHANGE	4.64	3.74	3.90	2.67	-2.87	-8.58	-4.16	-13.81	-35.52	23.16	-32.41
TC (INIT) +	$2404	$1	$6	$12	$52	$36	$62	$378	$86	$0	$141

CITY OR TOWN: STATE TOTALS — 1978 LEVY: $2,960,156,000 — AS PERCENT OF INCOME: 8.63 — PER CAPITA INCOME: $3,945
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 343; AT OR BELOW 2.5%: 101

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$55,060,210,000	$0	$55,060,210,000	$32.50	100.00
	RC	$1,151,886,000	$0	$1,151,886,000	$32.50	100.00
	C	$8,755,384,000	$0	$8,755,384,000	$32.50	100.00
	I	$4,501,370,000	$0	$4,501,370,000	$32.50	100.00
	AH	$66,502,000	$0	$66,502,000	$32.50	100.00
	L	$3,882,336,000	$0	$3,882,336,000	$32.50	100.00
	P	$4,038,939,000	$0	$4,038,939,000	$32.50	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$53,337,182,000	$0	$53,337,182,000	$32.55	100.00
	RC	$1,139,446,000	$0	$1,139,446,000	$32.55	100.00
	C	$9,200,042,000	$0	$9,200,042,000	$32.55	100.00
	I	$4,887,545,000	$0	$4,887,545,000	$32.55	100.00
	AH	$75,867,000	$0	$75,867,000	$32.55	100.00
	L	$3,623,149,000	$0	$3,623,149,000	$32.55	100.00
	P	$4,038,939,000	$0	$4,038,939,000	$32.55	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./MOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	146759	62575	39038	17929	64873	12691	3725	283311	0
AV/EV RATIO	48.63	47.11	36.48	35.07	48.13	47.51	54.32	60.62	59.12	41.01	68.12
AV	$37668239	$20916588	$1916340	$617405	$1759522	$547279	$4755971	$2728971	$59267	$1619497	$2751296
EV	$77456625	$44392125	$5252791	$1760076	$3655214	$1151885	$8755383	$4501369	$100501	$3182335	$4038939
TAXES	$78.56	$1336136	$159386	$65535	$188980	$50108	$491652	$249040	$3298	$80392	$269544
100% TAXES	$38.21	$1527529	$243165	$98037	$173238	$52023	$401955	$179020	$1872	$127959	$155362
TAX CHANGE +	$306602	$193056	$44985	$14491	$3266	$7016	$769	$156	$0	$42813	$45
TAX CHANGE -	$306625-	$1665-	$1206-	$1989-	$19006-	$5161-	$90468-	$70177-	$1425-	$1296-	$114226-
NET % CHANGE	10.55	14.32	21.95	14.61	-8.33	3.69	-18.24	-28.11	-43.22	41.05	-42.36
PLAN JA1 INITIAL											
ADJUSTED AV	$77456625	$44392125	$5252791	$1760076	$3655214	$1151885	$8755383	$4501369	$100501	$3182335	$4038939
NEW TAXES	$38.21	$1527529	$243165	$98037	$173238	$52023	$401955	$179020	$1872	$127959	$155362
TAX CHANGE +	$306602	$193056	$44985	$14491	$3266	$7016	$769	$156	$0	$42813	$45
TAX CHANGE -	$306625-	$1665-	$1206-	$1989-	$19006-	$5161-	$90468-	$70177-	$1425-	$1296-	$114226-
NET % CHANGE	10.35	14.32	21.95	14.61	-8.33	3.69	-18.24	-28.11	-43.22	40.05	-42.36
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$76302169	$43014522	$4944540	$1663531	$3714580	$1154445	$8760042	$4487544	$75866	$3023148	$4038939
NEW TAXES	$38.79	$1479416	$231444	$95576	$181856	$51661	$438294	$202710	$2474	$117495	$159487
TAX CHANGE +	$229356	$144484	$32865	$11063	$3037	$3497	$697	$141	$0	$32630	$45
TAX CHANGE -	$229385-	$1205-	$807-	$1023-	$10162-	$3455-	$34041-	$46920-	$1123-	$917-	$110101-
NET % CHANGE	7.74	10.72	16.07	11.73	-3.76	2.97	-18.85	-18.60	-34.07	30.00	-40.83
TC (INIT) +	$77978	$873	$551	$914	$9147	$1671	$33446	$23694	$301	$3369	$4125
TC (INIT) -	$77985-	$48785-	$12271-	$3446-	$529-	$2024-	$101-	$14-	$0	$11113-	$0
NET % CHANGE	2.63	-3.14	-4.81	-2.51	4.97	-6.69	9.64	13.22	16.11	-6.14	2.65

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 12 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (ZEROTH YEAR AT 2.5%) — UNEHUN — DATE: 78/10/16

CITY OR TOWN: STATE TOTALS — 1978 LEVY: $2,960,158,000 — AS PERCENT OF INCOME: 8.63 — PER CAPITA INCOME: $5,945
LEVY SHORTFALL: $0

CLASSIFICATION SUMMARY — TOTAL CITIES & TOWNS: 343; AT OR BELOW 2.5%: 101

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN JA1 INITIAL	R1,R2,R3,R4	$55,060,210,000	$0	$55,060,210,000	$32.50	100.00
	RC	$1,151,886,000	$0	$1,151,886,000	$32.50	100.00
	C	$8,755,384,000	$0	$8,755,384,000	$32.50	100.00
	I	$4,501,370,000	$0	$4,501,370,000	$32.50	100.00
	AH	$66,502,000	$0	$66,502,000	$32.50	100.00
	L	$3,882,336,000	$0	$3,882,336,000	$32.50	100.00
	P	$4,038,939,000	$0	$4,038,939,000	$32.50	100.00
PLAN JA1 EQUIL.	R1,R2,R3,R4	$53,337,182,000	$0	$53,337,182,000	$32.55	100.00
	RC	$1,139,446,000	$0	$1,139,446,000	$32.55	100.00
	C	$9,200,042,000	$0	$9,200,042,000	$32.55	100.00
	I	$4,887,545,000	$0	$4,887,545,000	$32.55	100.00
	AH	$75,867,000	$0	$75,867,000	$32.55	100.00
	L	$3,623,149,000	$0	$3,623,149,000	$32.55	100.00
	P	$4,038,939,000	$0	$4,038,939,000	$32.55	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	146759	62575	39038	17926	64873	12691	3725	363311	0
AV/EV RATIO	48.63	47.11	36.46	35.07	48.13	47.51	54.32	60.62	89.12	41.61	68.12
AV	$37668239	$19560	$13057	$9866	$45072	$30539	$73312	$215031	$15910	$4214	$2751396
EV	$77456625	$41555	$35791	$28127	$93632	$64279	$134961	$354689	$17852	$10128	$4038939
TAXES	$76.58	$1250	$1358	$1366	$4840	$2799	$7578	$19623	$885	$225	$269544
100% TAXES	$38.21	$1429	$1656	$1566	$4437	$2903	$6196	$14106	$502	$333	$155362
TAX CHANGE +	$306602	$180	$306	$231	$83	$391	$11	$12	$0	$111	$45
TAX CHANGE -	$306625-	$1-	$8-	$31-	$486-	$288-	$1394-	$5529-	$382-	$3-	$114226-
NET % CHANGE	10.35	14.32	21.95	14.61	-8.33	3.69	-18.24	-28.11	-43.22	46.05	-42.36
PLAN JA1 INITIAL											
ADJUSTED AV	$77456625	$41555	$35791	$28127	$93632	$64279	$134961	$354689	$17852	$10128	$4038939
NEW TAXES	$38.21	$1429	$1656	$1566	$4437	$2903	$6196	$14106	$502	$333	$155362
TAX CHANGE +	$306602	$180	$306	$231	$83	$391	$11	$12	$0	$111	$45
TAX CHANGE -	$306625-	$1-	$8-	$31-	$486-	$288-	$1394-	$5529-	$382-	$3-	$114226-
NET % CHANGE	10.35	14.32	21.95	14.61	-8.33	3.69	-18.24	-28.11	-43.22	46.05	-42.36
TC (100%) +	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TC (100%) -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NET % CHANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN JA1 EQUILIBRIUM											
ADJUSTED AV	$76302169	$40265	$33691	$26584	$95153	$63515	$141614	$385118	$20366	$9452	$4038939
NEW TAXES	$38.79	$1384	$1577	$1527	$4608	$2782	$7656	$15971	$563	$306	$159487
TAX CHANGE +	$229356	$135	$223	$176	$77	$278	$11	$12	$0	$13	$45
TAX CHANGE -	$229385-	$1-	$5-	$16-	$260-	$195-	$533-	$3014-	$361-	$2-	$110101-
NET % CHANGE	7.74	10.72	10.07	11.73	-3.76	2.97	-10.05	-18.66	-34.07	30.66	-40.83
TC (INIT) +	$77976	$0	$3	$15	$234	$92	$561	$1867	$61	$1	$4125

Chapter 580 Classification

Personal Property Held Harmless

CITY OR TOWN: 035 BOSTON 1978 LEVY: $441,311,000 AS PERCENT OF INCOME: 16.03 PER CAPITA INCOME: $4,197
LEVY SHORTFALL:

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN RB INITIAL	R1,R2,R3,R4	$2,692,632,000	$378,065,000	$698,916,000	$46.35	25.95
	RC	$295,818,000	$0	$133,118,000	$13.82	44.99
	C	$1,722,916,000	$0	$861,458,000	$43.14	50.00
	I	$419,339,000	$0	$230,636,000	$102.45	54.99
	AH	$74,000	$0	$74,000	$186.28	100.00
	L	$273,694,000	$0	$109,478,000	$74.51	39.99
	P	$471,088,000	$0	$335,277,000	$132.57	71.17
PLAN RB EQUIL.	R1,R2,R3,R4	$2,795,969,000	$378,065,000	$740,322,000	$49.34	26.47
	RC	$252,752,000	$0	$113,738,000	$83.86	44.99
	C	$1,719,121,000	$0	$859,561,000	$43.18	50.00
	I	$419,127,000	$0	$230,520,000	$102.50	54.99
	AH	$90,000	$0	$90,000	$186.37	100.00
	L	$221,236,000	$0	$88,494,000	$74.54	39.99
	P	$471,088,000	$0	$335,108,000	$132.57	71.13

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

ITERATIONS: 6

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	95851	31414	19612	16867	7720	2566	6070	1002	3	10557	0
AV/EV RATIO	29.69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$1745000	$169601	$112393	$101480	$209341	$63365	$631657	$169713	$74	$40325	$246961
EV	$5875561	$1056782	$604670	$420096	$611084	$295818	$1722916	$419339	$74	$273694	$471088
TAXES	$252.69	$42894	$28424	$25664	$52942	$16030	$159746	$42938	$18	$10198	$62456
100% TAXES	$70.09	$74080	$42387	$29448	$42836	$20736	$120776	$29395	$5	$19185	$62456
TAX CHANGE	$62630	$31188	$13963	$3784	$10105-	$4706	$38969-	$13542-	$13-	$8987	$0
% CHANGE	14.19	72.71	49.12	14.74	-19.08	29.36	-24.39	-31.53	-72.28	88.13	0.00
EXEMPTIONS	$378065	$157070	$98060	$84335	$38600	$0	$0	$0	$0	$0	$0
PLAN RB INITIAL											
ADJUSTED AV	$23690291	$265642	$143807	$83703	$205833	$133118	$861458	$230636	$74	$109477	$335277
NEW TAXES	$186.28	$49484	$26788	$15592	$38343	$24797	$160474	$42963	$13	$20393	$62456
TAX CHANGE	$26310	$6592	$1635-	$10071-	$14599-	$8767	$728	$25	$4-	$10195	$0
% CHANGE	5.96	15.37	-5.75	-39.24	-27.57	54.69	0.45	0.05	-26.34	99.97	0.00
TC (100%)	$58543	$24595-	$15598-	$13856-	$4493-	$4060	$39698	$13567	$6	$1207	$0
% CHANGE	13.26	-33.20	-36.79	-47.05	-10.49	19.56	32.86	46.15	165.74	0.29	0.00
PLAN RB EQUILIBRIUM											
ADJUSTED AV	$23678331	$250819	$147442	$106250	$235810	$113738	$859560	$230520	$90	$88494	$335108
NEW TAXES	$186.37	$46746	$27479	$19802	$43949	$21198	$160202	$42963	$16	$16492	$62456
TAX CHANGE	$15799	$3854	$944-	$5861-	$8992-	$5168	$456	$25	$1-	$6295	$0
% CHANGE	3.58	8.98	-3.32	-22.83	-16.98	32.24	0.28	0.05	-10.30	61.72	0.00
TC (INIT)	$10510	$2737-	$690	$4210	$5606	$3599-	$272-	$0	$3	$3900-	$0
% CHANGE	2.38	-5.53	2.57	27.00	14.62	-14.51	-0.16	0.00	21.77	-19.12	0.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 2 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (1978 YEAR AT 25%) — DATE: 82/06/08

CITY OR TOWN: 035 BOSTON — 1978 LEVY: $441,311,000 — AS PERCENT OF INCOME: 10.63 — PER CAPITA INCOME: $4,157
LEVY SHORTFALL:

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN RB INITIAL	R1,R2,R3,R4	$2,692,632,000	$378,065,000	$698,988,000	$48.35	25.95
	RC	$295,818,000	$0	$133,118,000	$83.82	44.99
	C	$1,722,916,000	$0	$861,458,000	$93.14	50.00
	I	$419,339,000	$0	$230,636,000	$102.45	54.99
	AH	$74,000	$0	$74,000	$186.28	100.00
	L	$273,694,000	$0	$109,478,000	$74.51	39.99
	P	$471,088,000	$0	$335,277,000	$132.57	71.17
PLAN RB EQUIL.	R1,R2,R3,R4	$2,795,969,000	$378,065,000	$740,322,000	$49.34	26.47
	RC	$252,752,000	$0	$113,738,000	$83.86	44.99
	C	$1,719,121,000	$0	$859,561,000	$93.18	50.00
	I	$419,127,000	$0	$230,520,000	$102.50	54.99
	AH	$90,000	$0	$90,000	$186.37	100.00
	L	$221,236,000	$0	$88,494,000	$74.54	39.99
	P	$471,088,000	$0	$335,108,000	$132.57	71.15

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES. — ITERATIONS: 6

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	95851	31414	19612	16867	7720	2566	6070	1002	3	10597	0
AV/EV RATIO	29.69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$1745000	$5398	$5730	$6016	$27116	$24701	$104062	$169444	$24666	$3805	$246961
EV	$5875561	$33640	$30851	$24906	$79155	$115283	$283841	$418501	$24666	$25827	$471088
TAXES	$252.89	$1365	$1449	$1521	$6857	$6247	$26317	$42852	$6236	$962	$62456
100% TAXES	$70.09	$2358	$2161	$1745	$5548	$8081	$19897	$29336	$1729	$1810	$62456
TAX CHANGE	$62630	$992	$711	$224	$1308-	$1834	$6420-	$13515-	$4509-	$846	$0
% CHANGE	14.19	72.71	49.12	14.74	-19.08	29.36	-24.39	-31.55	-72.28	88.13	0.00
EXEMPTIONS	$378065	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN RB INITIAL											
ADJUSTED AV	$2369029	$8456	$7332	$4962	$26662	$51877	$141920	$230176	$24666	$10330	$335277
NEW TAXES	$186.28	$1575	$1365	$924	$4966	$9663	$26437	$42877	$4594	$1924	$62456
TAX CHANGE	$26310	$209	$83-	$597-	$1891-	$3416	$120	$25	$1643-	$962	$0
% CHANGE	5.96	15.37	-5.75	-39.24	-27.57	54.69	0.45	0.05	-26.34	99.57	0.00
TC (100%)	$58543	$782-	$795-	$821-	$582-	$1582	$6540	$13540	$2665	$113	$0
% CHANGE	13.26	-33.20	-36.79	-47.05	-10.49	19.58	32.86	46.15	165.74	6.29	0.00
PLAN RB EQUILIBRIUM											
ADJUSTED AV	$2367833	$7984	$7517	$6299	$30545	$44325	$141607	$230059	$30020	$6350	$335108
NEW TAXES	$186.37	$1468	$1401	$1174	$5692	$8261	$26392	$42877	$5595	$1556	$62456
TAX CHANGE	$15799	$122	$48-	$347-	$1164-	$2014	$75	$25	$643-	$594	$0
% CHANGE	3.58	8.98	-3.32	-22.63	-16.98	32.24	0.28	0.05	-10.30	61.72	0.00
TC (INIT)	$10510	$87-	$85	$249	$726	$1402-	$44-	$0	$1000	$368-	$0
% CHANGE	2.38	-5.53	2.57	27.00	14.02	-14.51	-0.16	0.00	21.77	-19.14	0.00

CITY OR TOWN: CITIES >= 50,000 1978 LEVY: $1,296,762,000 AS PERCENT OF INCOME: 9.52 PER CAPITA INCOME: $5,692

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$14,808,078,000	$2,017,855,000	$3,905,376,000	$47.40	26.37
INITIAL	RC	$453,539,000	$0	$204,092,000	$80.88	44.99
	C	$4,040,462,000	$0	$2,020,231,000	$89.67	50.00
	I	$1,346,849,000	$0	$740,767,000	$98.85	54.99
	AH	$1,235,000	$0	$1,235,000	$179.74	100.00
	L	$778,031,000	$0	$311,212,000	$71.89	39.99
	P	$1,315,910,000	$0	$886,105,000	$121.03	67.33
PLAN R2	R1,R2,R3,R4	$15,160,555,000	$2,017,855,000	$4,046,367,000	$48.19	26.69
EQUIL.	RC	$404,938,000	$0	$182,222,000	$81.26	44.99
	C	$3,920,900,000	$0	$1,960,450,000	$90.29	50.00
	I	$1,331,923,000	$0	$732,558,000	$99.32	54.99
	AH	$853,000	$0	$853,000	$180.58	100.00
	L	$639,507,000	$0	$255,803,000	$72.23	39.99
	P	$1,315,910,000	$0	$885,616,000	$121.53	67.30

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250381	79008	48476	25706	6377	25066	4309	19	57087	0
AV/EV RATIO	38.00	32.00	28.00	30.00	43.00	30.00	47.00	54.00	88.00	22.00	67.00
AV	$8755474	$11669	$9390	$7754	$34150	$21741	$75885	$171053	$57789	$3052	$884787
EV	$22744103	$35735	$33051	$25275	$78735	$71121	$161192	$312566	$65010	$13628	$1315909
TAXES	$148.00	$1379	$1463	$1385	$5092	$4092	$12740	$27054	$4423	$458	$149312
100% TAXES	$53.00	$1745	$1772	$1507	$4327	$4526	$9499	$17287	$3521	$778	$149312
TAX CHANGE +	$148023	$365	$314	$150	$30	$780	$0	$0	$0	$324	$0
TAX CHANGE -	$148030-	$0	$5-	$28-	$795-	$346-	$3240-	$9766-	$902-	$4-	$0
NET % CHANGE	11.00	26.00	21.00	8.00	-15.00	10.00	-25.00	-36.00	-20.00	69.00	0.00
EXEMPTIONS	$2017855	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$8069019	$9294	$8220	$5110	$26494	$32004	$80596	$171911	$65010	$5451	$886105
NEW TAXES	$160.00	$1362	$1301	$905	$4151	$5656	$13746	$27684	$9836	$923	$149312
TAX CHANGE +	$99056	$54	$54	$3	$57	$1610	$1343	$2043	$5525	$467	$0
TAX CHANGE -	$99057-	$71-	$215-	$483-	$998-	$46-	$337-	$1412-	$112-	$2-	$0
NET % CHANGE	7.00	-1.00	-11.00	-34.00	-18.00	38.00	7.00	2.00	122.00	101.00	0.00
TC (100%) +	$171881	$0	$0	$0	$195	$1129	$4247	$10397	$6315	$145	$0
TC (100%) -	$171876-	$383-	$470-	$602-	$371-	$0	$0	$0	$0	$0	$0
NET % CHANGE	13.00	-21.00	-26.00	-39.00	-4.00	24.00	44.00	60.00	179.00	18.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$8063869	$9339	$8579	$6172	$28432	$28574	$78211	$170006	$44920	$4480	$865616
NEW TAXES	$160.00	$1368	$1369	$1109	$4510	$5007	$13312	$27469	$6834	$749	$149312
TAX CHANGE +	$59885	$33	$33	$2	$38	$944	$787	$1227	$2453	$292	$0
TAX CHANGE -	$59885-	$44-	$127-	$278-	$620-	$30-	$214-	$811-	$43-	$1-	$0
NET % CHANGE	4.00	0.00	-6.00	-19.00	-11.00	22.00	4.00	1.00	54.00	63.00	0.00
TC (INIT) +	$39192	$26	$80	$205	$378	$16	$123	$600	$69	$0	$0
TC (INIT) -	$39191-	$21-	$20-	$1-	$18-	$665-	$556-	$816-	$3071-	$174-	$0
NET % CHANGE	3.00	0.00	5.00	22.00	8.00	-11.00	-3.00	0.00	-30.00	-18.00	0.00

CITY OR TOWN: CITIES >= 50,000 — 1978 LEVY: $1,296,762,000 — AS PERCENT OF INCOME: 9.52 — PER CAPITA INCOME: $5,692

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$14,806,078,000	$2,017,855,000	$3,905,376,000	$47.40	26.37
	RC	$453,539,000	$0	$204,092,000	$80.88	44.99
	C	$4,040,462,000	$0	$2,020,231,000	$89.87	50.00
	I	$1,346,849,000	$0	$740,767,000	$98.85	54.99
	AH	$1,235,000	$0	$1,235,000	$179.74	100.00
	L	$778,031,000	$0	$311,212,000	$71.89	39.99
	P	$1,315,910,000	$0	$886,105,000	$121.03	67.33
PLAN R2 EQUIL.	R1,R2,R3,R4	$15,160,555,000	$2,017,855,000	$4,046,367,000	$48.19	26.69
	RC	$404,938,000	$0	$182,222,000	$81.26	44.99
	C	$3,920,900,000	$0	$1,960,450,000	$90.29	50.00
	I	$1,331,923,000	$0	$732,558,000	$99.32	54.99
	AH	$853,000	$0	$853,000	$180.58	100.00
	L	$639,507,000	$0	$255,803,000	$72.23	39.99
	P	$1,315,910,000	$0	$885,616,000	$121.53	67.30

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250381	79006	48476	25706	6377	25066	4309	19	57087	0
AV/EV RATIO	38.00	32.00	28.00	30.00	43.00	30.00	47.00	54.00	88.00	22.00	67.00
AV	$8755474	$2921813	$741690	$375915	$877868	$138645	$1902151	$737069	$1098	$174238	$884787
EV	$22744103	$8947524	$2611346	$1225235	$2023971	$453538	$4040461	$1346848	$1235	$778031	$1315909
TAXES	$148.00	$345514	$115597	$67177	$130904	$26099	$319341	$116575	$84	$26149	$149312
100% TAXES	$53.00	$437145	$140003	$73100	$111230	$28868	$238103	$74491	$66	$44427	$149312
TAX CHANGE +	$148023	$91631	$24826	$7287	$780	$4979	$0	$0	$0	$18519	$0
TAX CHANGE -	$148030-	$0	$420-	$1364-	$20454-	$2210-	$81237-	$42083-	$17-	$241-	$0
NET % CHANGE	11.00	26.00	21.00	8.00	-15.00	10.00	-25.00	-36.00	-20.00	69.00	0.00
EXEMPTIONS	$2017855	$1251905	$395040	$242380	$128530	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$8069019	$2327104	$649498	$247714	$681058	$204092	$2020230	$740766	$1235	$311212	$886105
NEW TAXES	$160.00	$341221	$102819	$43871	$106705	$36073	$344562	$119294	$186	$52708	$149312
TAX CHANGE +	$99056	$13618	$4270	$151	$1467	$10271	$33684	$8806	$104	$26680	$0
TAX CHANGE -	$99057-	$17911-	$17046-	$23458-	$25666-	$297-	$6463-	$6087-	$2-	$122-	$0
NET % CHANGE	7.00	-1.00	-11.00	-34.00	-18.00	38.00	7.00	2.00	122.00	101.00	0.00
TC (100%) +	$171881	$0	$0	$0	$5014	$7205	$106459	$44802	$120	$8280	$0
TC (100%) -	$171876-	$95924-	$37183-	$29228-	$9539-	$0	$0	$0	$0	$0	$0
NET % CHANGE	13.00	-21.00	-26.00	-39.00	-4.00	24.00	44.00	60.00	179.00	18.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$8063869	$2330462	$677843	$249237	$730884	$182222	$1960449	$732557	$853	$255802	$885616
NEW TAXES	$160.00	$342581	$108229	$53782	$115957	$31931	$333690	$118367	$129	$42773	$149312
TAX CHANGE +	$59885	$8325	$2668	$102	$995	$6025	$19728	$5290	$46	$16702	$0
TAX CHANGE -	$59885-	$11257-	$10036-	$13497-	$15944-	$193-	$5378-	$3498-	$0	$79-	$0
NET % CHANGE	4.00	0.00	-6.00	-19.00	-11.00	22.00	4.00	1.00	54.00	63.00	0.00
TC (INIT) +	$30192	$6648	$2311	$1	$1	$1	$1	$1	$1	$1	$0

CITY OR TOWN: CITIES: 25,000-50,000 1978 LEVY: $659,007,000 AS PERCENT OF INCOME: 8.30 PER CAPITA INCOME: $6,211

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$13,601,450,000	$1,511,195,000	$3,929,385,000	$31.11	28.88
	RC	$172,099,000	$0	$77,445,000	$48.46	44.99
	C	$2,089,420,000	$0	$1,044,710,000	$53.85	50.00
	I	$1,386,633,000	$0	$762,648,000	$59.23	54.99
	AH	$3,098,000	$0	$3,098,000	$107.70	100.00
	L	$678,287,000	$0	$271,315,000	$43.08	39.99
	P	$986,599,000	$0	$592,303,000	$64.66	60.03
PLAN R2 EQUIL.	R1,R2,R3,R4	$13,815,951,000	$1,511,195,000	$4,015,185,000	$31.44	29.06
	RC	$169,204,000	$0	$76,142,000	$48.68	44.99
	C	$1,986,791,000	$0	$993,396,000	$54.09	50.00
	I	$1,358,380,000	$0	$747,109,000	$59.50	54.99
	AH	$2,803,000	$0	$2,803,000	$108.18	100.00
	L	$626,171,000	$0	$250,468,000	$43.27	39.99
	P	$986,599,000	$0	$592,927,000	$65.01	60.09

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	8326	6815	3051	13090	3537	298	80818	0
AV/EV RATIO	44.00	41.00	36.00	38.00	46.00	49.00	56.00	56.00	89.00	41.00	57.00
AV	$8507864	$18423	$14250	$13474	$50968	$27673	$90198	$222004	$9265	$3513	$567852
EV	$18917586	$44474	$38774	$35091	$108594	$56407	$159619	$392036	$10395	$8392	$986599
TAXES	177.00	$1326	$1321	$1334	$4293	$2761	$6572	$20128	$664	$199	$56039
100% TAXES	$34.00	$1455	$1487	$1390	$4014	$2127	$5392	$13504	$302	$247	$56039
TAX CHANGE +	$45201	$129	$176	$135	$120	$0	$0	$0	$0	$55	$0
TAX CHANGE -	$45207-	$0	$11-	$79-	$399-	$634-	$1180-	$6624-	$362-	$6-	$0
NET % CHANGE	6.00	9.00	12.00	4.00	-6.00	-22.00	-17.00	-32.00	-54.00	24.00	0.00
EXEMPTIONS	$1511195	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$6680902	$12789	$10509	$9036	$38437	$25383	$79809	$215619	$10395	$3357	$592302
NEW TAXES	$98.00	$1228	$1208	$1016	$4216	$2919	$7903	$21638	$907	$302	$56039
TAX CHANGE +	$51109	$26	$60	$47	$243	$244	$1411	$3489	$322	$105	$0
TAX CHANGE -	$51108-	$124-	$174-	$365-	$320-	$86-	$80-	$1979-	$78-	$1-	$0
NET % CHANGE	7.00	-7.00	-8.00	-23.00	-1.00	5.00	20.00	7.00	36.00	52.00	0.00
TC (100%) +	$71076	$0	$0	$0	$340	$792	$2511	$8133	$605	$54	$0
TC (100%) -	$71069-	$226-	$279-	$374-	$138-	$0	$0	$0	$0	$0	$0
NET % CHANGE	10.00	-15.00	-18.00	-26.00	5.00	37.00	46.00	60.00	200.00	22.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$6678030	$13060	$10819	$9730	$38595	$24956	$75089	$211226	$9405	$3099	$592927
NEW TAXES	$98.00	$1256	$1241	$1154	$4246	$2875	$7513	$21087	$782	$276	$56039
TAX CHANGE +	$35827	$18	$40	$32	$175	$171	$995	$2333	$168	$78	$0
TAX CHANGE -	$35825-	$89-	$120-	$213-	$222-	$57-	$54-	$1374-	$49-	$0	$0
NET % CHANGE	5.00	-5.00	-6.00	-13.00	-1.00	4.00	14.00	4.00	17.00	38.00	0.00
TC (INIT) +	$15286	$35	$53	$152	$97	$29	$26	$604	$28	$0	$0
TC (INIT) -	$15285-	$7-	$20-	$14-	$68-	$73-	$415-	$1155-	$153-	$26-	$0
NET % CHANGE	2.00	2.00	2.00	13.00	0.00	-1.00	-4.00	-2.00	-13.00	-8.00	0.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 6 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (INFLATED) — CRAYZY2L/5K — DATE: 78/09/18

CITY OR TOWN: CITIES: 25,000-50,000 1978 LEVY: $659,007,000 AS PERCENT OF INCOME: 8.30 PER CAPITA INCOME: $6,211

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$13,601,450,000	$1,511,195,000	$3,929,385,000	$31.11	28.88
	RC	$172,099,000	$0	$77,445,000	$48.46	44.99
	C	$2,089,420,000	$0	$1,044,710,000	$53.85	50.00
	I	$1,386,633,000	$0	$762,648,000	$59.23	54.99
	AH	$3,098,000	$0	$3,098,000	$107.70	100.00
	L	$678,287,000	$0	$271,315,000	$43.08	39.99
	P	$986,599,000	$0	$592,303,000	$64.66	60.03
PLAN R2 EQUIL.	R1,R2,R3,R4	$13,815,951,000	$1,511,195,000	$4,015,185,000	$31.44	29.06
	RC	$169,204,000	$0	$76,142,000	$48.68	44.99
	C	$1,986,791,000	$0	$993,396,000	$54.09	50.00
	I	$1,358,380,000	$0	$747,109,000	$59.50	54.99
	AH	$2,803,000	$0	$2,803,000	$108.18	100.00
	L	$626,171,000	$0	$250,468,000	$43.27	39.99
	P	$986,599,000	$0	$592,927,000	$65.01	60.09

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	8326	6815	3051	13090	3537	298	80818	0
AV/EV RATIO	44.00	41.00	36.00	38.00	46.00	49.00	56.00	56.00	89.00	41.00	57.00
AV	$8507864	$4644815	$498623	$112187	$347349	$84431	$1180670	$785231	$2761	$283945	$567852
EV	$18917586	$11212436	$1356771	$292172	$740070	$172099	$2089419	$1386632	$3097	$678287	$986599
TAXES	$77.00	$334385	$46256	$11112	$29261	$8426	$86032	$71195	$197	$16094	$56039
100% TAXES	$34.00	$366995	$52055	$11576	$27359	$6491	$70583	$47766	$90	$20041	$56039
TAX CHANGE +	$45201	$32610	$6189	$1126	$822	$0	$0	$1	$0	$4451	$0
TAX CHANGE -	$45207-	$0	$391-	$662-	$2725-	$1935-	$15449-	$23430-	$107-	$505-	$0
NET % CHANGE	6.00	9.00	12.00	4.00	-6.00	-22.00	-17.00	-32.00	-54.00	24.00	0.00
EXEMPTIONS	$1511195	$1260535	$174955	$41630	$34075	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$6680902	$3224439	$367753	$75238	$261952	$77444	$1044709	$762647	$3097	$271314	$592302
NEW TAXES	$98.00	$309839	$42273	$8464	$28737	$8908	$103452	$76534	$270	$24482	$56039
TAX CHANGE +	$51109	$6765	$2128	$397	$1658	$747	$18476	$12342	$95	$8498	$0
TAX CHANGE -	$51108-	$31312-	$6111-	$3045-	$2182-	$264-	$1056-	$7002-	$23-	$109-	$0
NET % CHANGE	7.00	-7.00	-8.00	-23.00	-1.00	5.00	20.00	7.00	36.00	52.00	0.00
TC (100%) +	$71076	$67	$0	$7	$2323	$2417	$32869	$28768	$180	$4441	$0
TC (100%) -	$71069-	$57224-	$9781-	$3119-	$945-	$0	$0	$0	$0	$0	$0
NET % CHANGE	10.00	-15.00	-18.00	-26.00	5.00	37.00	46.00	60.00	200.00	22.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$6678030	$3292546	$378600	$81012	$263025	$76141	$993395	$747109	$2802	$250468	$592927
NEW TAXES	$98.00	$316684	$43437	$9611	$28940	$8773	$98349	$74585	$233	$22348	$56039
TAX CHANGE +	$35827	$4762	$1412	$273	$1196	$522	$13032	$8254	$50	$6322	$0
TAX CHANGE -	$35825-	$22463-	$4231-	$1775-	$1518-	$174-	$716-	$4863-	$14-	$68-	$0
NET % CHANGE	5.00	-5.00	-6.00	-13.00	-1.00	4.00	14.00	4.00	17.00	38.00	0.00
TC (INIT) +	$15286	$8868	$1879	$370	$2654	$3091	$45901	$37022	$230	$4771	$0

CITY OR TOWN: TOWNS: 10,000-25,000 1978 LEVY: $671,466,000 AS PERCENT OF INCOME: 7.85 PER CAPITA INCOME: $6,204

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$16,278,264,000	$1,844,940,000	$4,666,365,000	$15.57	28.66
	RC	$240,542,000	$0	$108,244,000	$24.44	44.99
	C	$1,776,919,000	$0	$888,460,000	$27.15	50.00
	I	$1,100,349,000	$0	$605,192,000	$29.87	54.99
	AH	$27,572,000	$0	$27,572,000	$54.31	100.00
	L	$1,046,202,000	$0	$261,550,000	$13.57	25.00
	P	$967,331,000	$0	$440,055,000	$24.71	45.49
PLAN R2 EQUIL.	R1,R2,R3,R4	$16,570,302,000	$1,844,940,000	$4,783,181,000	$15.69	28.86
	RC	$224,976,000	$0	$101,239,000	$24.46	44.99
	C	$1,641,007,000	$0	$820,504,000	$27.18	50.00
	I	$1,021,673,000	$0	$561,920,000	$29.90	54.99
	AH	$19,917,000	$0	$19,917,000	$54.37	100.00
	L	$1,032,028,000	$0	$258,007,000	$13.59	25.00
	P	$967,331,000	$0	$439,081,000	$24.68	45.39

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	338664	22102	3928	4294	4018	17259	2950	1168	116218	0
AV/EV RATIO	56.00	54.00	52.00	53.00	59.00	61.00	63.00	64.00	89.00	41.00	78.00
AV	$12050661	$23481	$19251	$20567	$89160	$36917	$65321	$242347	$21039	$3764	$756459
EV	$21437179	$43339	$36574	$38752	$149067	$59866	$102956	$372999	$23606	$9002	$967331
TAXES	$55.00	$1295	$1175	$1285	$5221	$2141	$3671	$14704	$1016	$198	$39617
100% TAXES	$31.00	$1327	$1182	$1305	$4804	$1934	$3256	$12045	$735	$257	$39617
TAX CHANGE +	$20740	$35	$35	$62	$28	$16	$17	$7	$0	$61	$0
TAX CHANGE -	$20745-	$3-	$27-	$42-	$445-	$223-	$432-	$2666-	$281-	$2-	$0
NET % CHANGE	3.00	2.00	0.00	1.00	-7.00	-9.00	-11.00	-18.00	-27.00	29.00	0.00
EXEMPTIONS	$1844940	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$6997437	$12335	$9629	$10501	$54627	$26939	$51478	$205149	$23606	$2250	$440054
NEW TAXES	$95.00	$1177	$997	$1126	$5511	$2793	$5014	$19363	$2516	$215	$39616
TAX CHANGE +	$49104	$1	$10	$64	$487	$657	$1358	$4760	$1529	$35	$0
TAX CHANGE -	$49102-	$119-	$187-	$223-	$197-	$4-	$14-	$101-	$29-	$17-	$0
NET % CHANGE	7.00	-9.00	-15.00	-12.00	5.00	30.00	36.00	31.00	147.00	8.00	0.00
TC (100%) +	$61640	$0	$5	$20	$768	$859	$1758	$7318	$1780	$5	$0
TC (100%) -	$61633-	$150-	$189-	$199-	$61-	$0	$0	$0	$0	$47-	$0
NET % CHANGE	9.00	-11.00	-15.00	-13.00	14.00	44.00	53.00	60.00	242.00	-16.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$6983848	$12655	$10092	$10896	$53902	$25196	$47540	$190481	$17051	$2220	$439080
NEW TAXES	$96.00	$1212	$1054	$1162	$5439	$2606	$4616	$17905	$1802	$212	$39616
TAX CHANGE +	$34612	$1	$7	$45	$359	$468	$955	$3270	$803	$28	$0
TAX CHANGE -	$34610-	$84-	$128-	$148-	$142-	$3-	$10-	$69-	$17-	$14-	$0
NET % CHANGE	5.00	-6.00	-10.00	-8.00	4.00	21.00	25.00	21.00	77.00	7.00	0.00
TC (INIT) +	$14495	$35	$59	$74	$55	$1	$3	$31	$12	$3	$0
TC (INIT) -	$14494-	$0	$2-	$18-	$127-	$189-	$402-	$1489-	$725-	$6-	$0
NET % CHANGE	2.00	3.00	5.00	4.00	-1.00	-6.00	-7.00	-7.00	-28.00	-1.00	0.00

CITY OR TOWN: TOWNS: 10,000-25,000 1978 LEVY: $671,466,000 AS PERCENT OF INCOME: 7.85 PER CAPITA INCOME: $6,204

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$16,278,264,000	$1,844,940,000	$4,666,365,000	$15.57	28.66
INITIAL	RC	$240,542,000	$0	$108,244,000	$24.44	44.99
	C	$1,776,919,000	$0	$888,460,000	$27.15	50.00
	I	$1,100,349,000	$0	$605,192,000	$29.87	54.99
	AH	$27,572,000	$0	$27,572,000	$54.31	100.00
	L	$1,046,202,000	$0	$261,550,000	$13.57	25.00
	P	$967,331,000	$0	$440,055,000	$24.71	45.49
PLAN R2	R1,R2,R3,R4	$16,570,302,000	$1,844,940,000	$4,783,181,000	$15.69	28.86
EQUIL.	RC	$224,976,000	$0	$101,239,000	$24.46	44.99
	C	$1,641,007,000	$0	$820,504,000	$27.18	50.00
	I	$1,021,673,000	$0	$561,920,000	$29.90	54.99
	AH	$19,917,000	$0	$19,917,000	$54.37	100.00
	L	$1,032,028,000	$0	$258,007,000	$13.59	25.00
	P	$967,331,000	$0	$439,081,000	$24.68	45.39

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	338664	22102	3928	4294	4018	17259	2950	1168	116218	0
AV/EV RATIO	56.00	54.00	52.00	53.00	59.00	61.00	63.00	64.00	89.00	41.00	78.00
AV	$12050661	$7952309	$425504	$80789	$382855	$148336	$1127376	$714925	$24574	$437534	$756459
EV	$21437179	$14677586	$808359	$152220	$640097	$240542	$1776919	$1100348	$27571	$1046202	$967331
TAXES	$55.00	$438851	$25970	$5049	$22421	$8603	$63358	$43378	$1187	$23022	$39617
100% TAXES	$31.00	$449690	$26131	$5128	$20629	$7772	$56207	$35535	$858	$29883	$39617
TAX CHANGE +	$20740	$12083	$773	$245	$122	$67	$307	$22	$0	$7118	$0
TAX CHANGE -	$20745-	$1245-	$611-	$166-	$1914-	$898-	$7458-	$7866-	$328-	$256-	$0
NET % CHANGE	3.00	2.00	0.00	1.00	-7.00	-9.00	-11.00	-18.00	-27.00	29.00	0.00
EXEMPTIONS	$1644940	$1693320	$110510	$19640	$21470	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$6997437	$4177714	$212033	$41248	$234568	$108243	$888459	$605191	$27571	$261550	$440054
NEW TAXES	$95.00	$398770	$22054	$4424	$23665	$11225	$86550	$57123	$2938	$25092	$39616
TAX CHANGE +	$49104	$513	$237	$251	$2092	$2641	$23438	$14042	$1786	$4100	$0
TAX CHANGE -	$49102-	$40595-	$4152-	$876-	$848-	$19-	$247-	$298-	$34-	$2030-	$0
NET % CHANGE	7.00	-9.00	-15.00	-12.00	5.00	30.00	36.00	31.00	147.00	8.00	0.00
TC (100%) +	$61640	$0	$120	$81	$3301	$3452	$30347	$21588	$2079	$673	$0
TC (100%) -	$61633-	$50919-	$4197-	$785-	$265-	$0	$0	$0	$0	$5464-	$0
NET % CHANGE	9.00	-11.00	-15.00	-13.00	14.00	44.00	53.00	60.00	242.00	-16.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$6963848	$4285866	$223053	$42803	$231457	$101239	$820503	$561920	$19916	$258007	$439080
NEW TAXES	$96.00	$410742	$23313	$4644	$23355	$10471	$79668	$52820	$2105	$24723	$39616
TAX CHANGE +	$34612	$388	$174	$178	$1544	$1880	$16497	$9647	$938	$3362	$0
TAX CHANGE -	$34610-	$28498-	$2831-	$592-	$610-	$12-	$186-	$206-	$20-	$1660-	$0
NET % CHANGE	5.00	-6.00	-10.00	-8.00	4.00	21.00	25.00	21.00	77.00	7.00	0.00
TC (INIT) +	$16685	$13088									

CITY OR TOWN: TOWNS < 10,000 1978 LEVY: $332,923,000 AS PERCENT OF INCOME: 7.90 PER CAPITA INCOME: $5,816

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$10,372,417,000	$1,209,175,000	$2,939,791,000	$29.48	28.34
	RC	$285,706,000	$0	$128,568,000	$46.82	44.99
	C	$848,583,000	$0	$424,291,000	$52.02	50.00
	I	$667,539,000	$0	$367,147,000	$57.22	54.99
	AH	$34,597,000	$0	$34,597,000	$104.04	100.00
	L	$1,379,815,000	$0	$344,954,000	$26.01	25.00
	P	$769,099,000	$0	$392,781,000	$53.13	51.07
PLAN R2 EQUIL.	R1,R2,R3,R4	$10,510,574,000	$1,209,175,000	$2,995,054,000	$29.82	28.49
	RC	$271,544,000	$0	$122,195,000	$47.10	44.99
	C	$790,186,000	$0	$395,093,000	$52.33	50.00
	I	$629,768,000	$0	$346,373,000	$57.56	54.99
	AH	$29,562,000	$0	$29,562,000	$104.67	100.00
	L	$1,375,833,000	$0	$343,958,000	$26.16	25.00
	P	$769,099,000	$0	$392,652,000	$53.43	51.05

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	389090	227109	10658	1845	2223	4474	9458	1895	2240	129188	0
AV/EV RATIO	58.00	56.00	52.00	53.00	60.00	61.00	64.00	73.00	89.00	52.00	70.00
AV	$8354240	$23766	$23486	$26294	$68128	$39307	$57705	$259496	$13765	$5571	$542298
EV	$14357756	$42070	$44690	$49024	$112944	$63859	$89721	$352263	$15444	$10680	$769099
TAXES	$39.00	$957	$1084	$1190	$2875	$1573	$2423	$9441	$816	$163	$24575
100% TAXES	$23.00	$970	$1101	$1187	$2692	$1410	$2149	$7882	$423	$197	$24575
TAX CHANGE +	$10143	$20	$47	$51	$64	$6	$8	$7	$0	$35	$0
TAX CHANGE -	$10146-	$7-	$30-	$53-	$247-	$169-	$282-	$1566-	$393-	$1-	$0
NET % CHANGE	3.00	1.00	1.00	0.00	-6.00	-10.00	-11.00	-16.00	-48.00	20.00	0.00
EXEMPTIONS	$1209175	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$4632128	$11828	$12876	$14609	$40177	$28736	$44860	$193744	$15444	$2670	$392780
NEW TAXES	$71.00	$872	$1009	$1133	$3060	$2076	$3437	$12719	$1280	$168	$24575
TAX CHANGE +	$25348	$3	$51	$68	$357	$523	$1024	$3568	$595	$23	$0
TAX CHANGE -	$25346-	$87-	$127-	$145-	$172-	$20-	$10-	$290-	$131-	$17-	$0
NET % CHANGE	7.00	-8.00	-6.00	-4.00	6.00	31.00	41.00	34.00	56.00	3.00	0.00
TC (100%) +	$28235	$0	$35	$58	$407	$665	$1288	$4844	$857	$2	$0
TC (100%) -	$28230-	$98-	$127-	$112-	$39-	$0	$0	$8-	$0	$31-	$0
NET % CHANGE	8.00	-10.00	-8.00	-4.00	13.00	47.00	59.00	61.00	202.00	-14.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$4624887	$12065	$13074	$14757	$39681	$27312	$41773	$182782	$13197	$2662	$392652
NEW TAXES	$71.00	$895	$1033	$1151	$3024	$1953	$3164	$11833	$1086	$167	$24575
TAX CHANGE +	$18754	$2	$38	$66	$279	$396	$749	$2601	$344	$19	$0
TAX CHANGE -	$18751-	$64-	$90-	$104-	$130-	$16-	$8-	$209-	$74-	$15-	$0
NET % CHANGE	5.00	-6.00	-4.00	-3.00	5.00	24.00	30.00	25.00	33.00	2.00	0.00
TC (INIT) +	$6603	$23	$37	$40	$42	$3	$2	$80	$56	$2	$0
TC (INIT) -	$6603-	$0	$13-	$22-	$78-	$127-	$275-	$966-	$251-	$3-	$0
NET % CHANGE	1.00	2.00	2.00	1.00	-1.00	-5.00	-7.00	-6.00	-15.00	0.00	0.00

CITY OR TOWN: TOWNS < 10,000 — 1978 LEVY: $332,923,000 — AS PERCENT OF INCOME: 7.90 — PER CAPITA INCOME: $5,816

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$10,372,417,000	$1,209,175,000	$2,939,791,000	$29.48	28.34
	RC	$285,706,000	$0	$128,568,000	$46.82	44.99
	C	$848,583,000	$0	$424,291,000	$52.02	50.00
	I	$667,539,000	$0	$367,147,000	$57.22	54.99
	AH	$34,597,000	$0	$34,597,000	$104.04	100.00
	L	$1,379,815,000	$0	$344,954,000	$26.01	25.00
	P	$769,099,000	$0	$392,781,000	$53.13	51.07
PLAN R2 EQUIL.	R1,R2,R3,R4	$10,510,574,000	$1,209,175,000	$2,995,054,000	$29.82	28.49
	RC	$271,544,000	$0	$122,195,000	$47.10	44.99
	C	$790,186,000	$0	$395,093,000	$52.33	50.00
	I	$629,768,000	$0	$346,373,000	$57.56	54.99
	AH	$29,562,000	$0	$29,562,000	$104.67	100.00
	L	$1,375,833,000	$0	$343,958,000	$26.16	25.00
	P	$769,099,000	$0	$392,652,000	$53.43	51.05

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	389090	227109	10658	1845	2223	4474	9458	1895	2240	129188	0
AV/EV RATIO	58.00	56.00	52.00	53.00	60.00	61.00	64.00	73.00	89.00	52.00	70.00
AV	$8354240	$5397651	$250323	$48514	$151450	$175863	$545781	$491746	$30834	$719780	$542298
EV	$14357756	$9554578	$476313	$90449	$251075	$285705	$848583	$667539	$34596	$1379815	$769099
TAXES	$39.00	$217385	$11561	$2195	$6393	$7039	$22920	$17891	$1828	$21126	$24575
100% TAXES	$23.00	$220382	$11735	$2190	$5985	$6310	$20326	$14937	$948	$25521	$24575
TAX CHANGE +	$10143	$4663	$503	$94	$143	$28	$76	$14	$0	$4620	$0
TAX CHANGE -	$10146-	$1666-	$329-	$99-	$551-	$756-	$2670-	$2967-	$880-	$224-	$0
NET % CHANGE	3.00	1.00	1.00	0.00	-6.00	-10.00	-11.00	-16.00	-48.00	20.00	0.00
EXEMPTIONS	$1209175	$1135545	$53290	$9225	$11115	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$4632128	$2686286	$137235	$26954	$89315	$128567	$424291	$367146	$34596	$344953	$392780
NEW TAXES	$71.00	$198128	$10757	$2091	$6803	$9289	$32509	$24102	$2868	$21793	$24575
TAX CHANGE +	$25348	$720	$553	$163	$794	$2343	$9690	$6761	$1333	$2987	$0
TAX CHANGE -	$25346-	$19977-	$1357-	$268-	$383-	$92-	$102-	$549-	$294-	$2319-	$0
NET % CHANGE	7.00	-8.00	-6.00	-4.00	6.00	31.00	41.00	34.00	56.00	3.00	0.00
TC (100%) +	$28235	$223	$377	$107	$906	$2979	$12182	$9180	$1920	$357	$0
TC (100%) -	$28230-	$22478-	$1354-	$207-	$88-	$0	$0	$15-	$0	$4085-	$0
NET % CHANGE	8.00	-10.00	-8.00	-4.00	13.00	47.00	59.00	61.00	202.00	-14.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$4624887	$2740264	$139349	$27227	$88212	$122194	$395092	$346372	$29562	$343958	$392652
NEW TAXES	$71.00	$203356	$11011	$2124	$6723	$8738	$29928	$22423	$2433	$21604	$24575
TAX CHANGE +	$18754	$532	$411	$121	$621	$1774	$7089	$4929	$771	$2501	$0
TAX CHANGE -	$18751-	$14561-	$961-	$193-	$290-	$75-	$81-	$397-	$167-	$2023-	$0
NET % CHANGE	5.00	-6.00	-4.00	-3.00	5.00	24.00	30.00	25.00	33.00	2.00	0.00
TC (INIT) +	$6603	$5424	$396	$75	$93	$17					

CITY OR TOWN: STATE TOTALS — 1978 LEVY: $2,960,158,000 — AS PERCENT OF INCOME: 8.63 — PER CAPITA INCOME: $5,945

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$55,060,210,000	$6,583,165,000	$15,440,918,000	$29.17	28.04
INITIAL	RC	$1,151,886,000	$0	$518,349,000	$46.82	44.99
	C	$8,755,384,000	$0	$4,377,692,000	$52.02	50.00
	I	$4,501,370,000	$0	$2,475,753,000	$57.22	54.99
	AH	$66,502,000	$0	$66,502,000	$104.04	100.00
	L	$3,882,336,000	$0	$1,189,031,000	$26.01	25.00
	P	$4,038,939,000	$0	$2,311,243,000	$59.54	57.22
PLAN R2	R1,R2,R3,R4	$56,057,383,000	$6,583,165,000	$15,839,787,000	$29.57	28.25
EQUIL.	RC	$1,070,663,000	$0	$481,798,000	$47.10	44.99
	C	$8,338,884,000	$0	$4,169,442,000	$52.33	50.00
	I	$4,341,745,000	$0	$2,387,960,000	$57.56	54.99
	AH	$53,135,000	$0	$53,135,000	$104.67	100.00
	L	$3,673,540,000	$0	$1,108,237,000	$26.16	25.00
	P	$4,038,939,000	$0	$2,310,277,000	$59.87	57.20

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	146759	62575	39038	17920	64873	12691	3725	383311	0
AV/EV RATIO	48.00	47.00	36.00	35.00	48.00	47.00	54.00	60.00	89.00	41.00	68.00
AV	$37668239	$19580	$13057	$9866	$45072	$30539	$73312	$215031	$15910	$4214	$2751396
EV	$77456625	$41555	$35791	$28127	$93632	$64279	$134961	$354689	$17852	$10128	$4038939
TAXES	$78.00	$1250	$1358	$1366	$4840	$2799	$7578	$19623	$885	$225	$269544
100% TAXES	$37.00	$1380	$1566	$1470	$4231	$2759	$5938	$13610	$527	$312	$269544
TAX CHANGE +	$224110	$131	$220	$139	$47	$283	$5	$2	$0	$90	$0
TAX CHANGE -	$224129-	$2-	$11-	$36-	$656-	$323-	$1646-	$6015-	$358-	$3-	$0
NET % CHANGE	7.00	10.00	15.00	7.00	-12.00	-1.00	-21.00	-30.00	-40.00	38.00	0.00
EXEMPTIONS	$6583165	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2	INITIAL										
ADJUSTED AV	$26379488	$11622	$9316	$6250	$32452	$28925	$67480	$195079	$17852	$3102	$2311243
NEW TAXES	$112.00	$1168	$1212	$940	$4250	$3654	$8741	$21830	$1681	$323	$269543
TAX CHANGE +	$224619	$20	$48	$15	$154	$893	$1314	$3305	$891	$110	$0
TAX CHANGE -	$224614-	$102-	$195-	$441-	$744-	$37-	$152-	$1098-	$95-	$11-	$0
NET % CHANGE	7.00	-6.00	-10.00	-31.00	-12.00	30.00	15.00	11.00	89.00	43.00	0.00
TC (100%) +	$332833	$0	$3	$3	$295	$895	$2803	$8221	$1154	$35	$0
TC (100%) -	$332809-	$212-	$357-	$532-	$277-	$0	$0	$1-	$0	$24-	$0
NET % CHANGE	11.00	-15.00	-22.00	-36.00	0.00	32.00	47.00	60.00	218.00	3.00	0.00
PLAN R2	EQUILIBRIUM										
ADJUSTED AV	$26350636	$11848	$9667	$7195	$33648	$26886	$64270	$188161	$14264	$2891	$2310276
NEW TAXES	$112.00	$1191	$1267	$1121	$4482	$3343	$8349	$21132	$1315	$290	$269543
TAX CHANGE +	$149080	$13	$31	$10	$111	$569	$868	$2215	$485	$75	$0
TAX CHANGE -	$149073-	$71-	$123-	$256-	$470-	$25-	$98-	$706-	$54-	$9-	$0
NET % CHANGE	5.00	-4.00	-6.00	-17.00	-7.00	19.00	10.00	7.00	48.00	29.00	0.00
TC (INIT) +	$75577	$30	$72	$185	$274	$12	$54	$391	$40	$1	$0
TC (INIT) -	$75575-	$7-	$17-	$4-	$42-	$323-	$446-	$1089-	$406-	$34-	$0
NET % CHANGE	2.00	2.00	4.00	19.00	5.00	-8.00	-4.00	-3.00	-21.00	-10.00	0.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 12 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (INFLATED) — CRAYZY2L/5K — DATE: 78/09/18

CITY OR TOWN: STATE TOTALS — 1978 LEVY: $2,960,158,000 — AS PERCENT OF INCOME: 8.63 — PER CAPITA INCOME: $5,945

CLASSIFICATION SUMMARY (PERSONAL PROPERTY HELD HARMLESS)

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$55,060,210,000	$6,583,165,000	$15,440,918,000	$29.17	28.04
	RC	$1,151,886,000	$0	$518,349,000	$46.82	44.99
	C	$8,755,384,000	$0	$4,377,692,000	$52.02	50.00
	I	$4,501,370,000	$0	$2,475,753,000	$57.22	54.99
	AH	$66,502,000	$0	$66,502,000	$104.04	100.00
	L	$3,882,336,000	$0	$1,189,031,000	$26.01	25.00
	P	$4,038,939,000	$0	$2,311,243,000	$59.54	57.22
PLAN R2 EQUIL.	R1,R2,R3,R4	$56,057,383,000	$6,583,165,000	$15,839,787,000	$29.57	28.25
	RC	$1,070,663,000	$0	$481,798,000	$47.10	44.99
	C	$8,338,884,000	$0	$4,169,442,000	$52.33	50.00
	I	$4,341,745,000	$0	$2,387,960,000	$57.56	54.99
	AH	$53,135,000	$0	$53,135,000	$104.67	100.00
	L	$3,673,540,000	$0	$1,108,237,000	$26.16	25.00
	P	$4,038,939,000	$0	$2,310,277,000	$59.87	57.20

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	146759	62575	39038	17920	64873	12691	3725	383311	0
AV/EV RATIO	48.00	47.00	36.00	35.00	48.00	47.00	54.00	60.00	89.00	41.00	68.00
AV	$37668239	$20916588	$1916340	$617405	$1759522	$547275	$4755978	$2728971	$59267	$1615497	$2751396
EV	$77456625	$44392125	$5252791	$1760078	$3655214	$1151885	$8755383	$4501369	$66501	$3882335	$4038939
TAXES	$78.00	$1336138	$199386	$85535	$188980	-$50168	$491652	$249040	$3298	$86392	$269544
100% TAXES	$37.00	$1474214	$229926	$91995	$165205	$49443	$385220	$172730	$1964	$119874	$269544
TAX CHANGE +	$224110	$140988	$32292	$8753	$1868	$5074	$384	$37	$0	$34710	$0
TAX CHANGE -	$224129-	$2911-	$1752-	$2299-	$25644-	$5799-	$106816-	$76347-	$1333-	$1228-	$0
NET % CHANGE	7.00	10.00	15.00	7.00	-12.00	-1.00	-21.00	-30.00	-40.00	38.00	0.00
EXEMPTIONS	$6583165	$5341305	$733795	$312875	$195190	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$26379488	$12415545	$1367321	$391156	$1266895	$518348	$4377691	$2475753	$66501	$1109031	$2311243
NEW TAXES	$112.00	$1247959	$177906	$58851	$165912	$65496	$567074	$277055	$6265	$124077	$269543
TAX CHANGE +	$224619	$21618	$7189	$964	$6012	$16003	$85291	$41953	$3320	$42266	$0
TAX CHANGE -	$224614-	$109796-	$28669-	$27648-	$29080-	$674-	$9869-	$13938-	$354-	$4581-	$0
NET % CHANGE	7.00	-6.00	-10.00	-31.00	-12.00	30.00	15.00	11.00	89.00	43.00	0.00
TC (100%) +	$332833	$290	$497	$196	$11545	$16053	$181854	$104340	$4300	$13753	$0
TC (100%) -	$332809-	$226545-	$52517-	$33340-	$10838-	$0	$0	$15-	$0	$9550-	$0
NET % CHANGE	11.00	-15.00	-22.00	-36.00	0.00	32.00	47.00	60.00	218.00	3.00	0.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$26350636	$12657078	$1418846	$450281	$1313579	$481798	$4169442	$2387959	$53135	$1108236	$2310276
NEW TAXES	$112.00	$1273365	$185992	$70163	$174977	$59915	$541637	$268197	$4902	$111449	$269543
TAX CHANGE +	$149080	$14009	$4667	$676	$4357	$10203	$56347	$28122	$1806	$28888	$0
TAX CHANGE -	$149073-	$76781-	$18061-	$16048-	$18361-	$456-	$6363-	$8965-	$203-	$3831-	$0
NET % CHANGE	5.00	-4.00	-6.00	-17.00	-7.00	19.00	10.00	7.00	48.00	29.00	0.00
TC (INIT) +	$75577	$33040	$10608	$11600	$10728	$218	$3506	$4973	$151	$750	$0

Chapter 580 Classification

Personal Property Not Held Harmless

CITY OR TOWN: [illegible] BOSTON 1978 LEVY: $441,311,000 AS PERCENT OF INCOME: 10.63 PER CAPITA INCOME: $4,157
LEVY SHORTFALL:

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN RR INITIAL	R1,R2,R3,R4	$2,692,692,000	$378,065,000	$698,988,000	$45.73	25.95
	RC	$295,818,000	$0	$133,118,000	$79.28	44.99
	C	$1,772,916,000	$0	$861,458,000	$88.09	50.00
	I	$419,339,000	$0	$230,636,000	$96.89	54.99
	AH	$74,000	$0	$74,000	$176.18	100.00
	L	$273,694,000	$0	$109,478,000	$70.47	39.99
	P	$471,088,000	$0	$471,088,000	$176.18	100.00
PLAN RR EQUIL.	R1,R2,R3,R4	$2,658,875,000	$378,065,000	$765,485,000	$45.86	26.77
	RC	$261,448,000	$0	$117,652,000	$77.08	44.99
	C	$1,782,109,000	$0	$891,054,000	$85.65	50.00
	I	$455,343,000	$0	$239,439,000	$94.21	54.99
	AH	$95,000	$0	$95,000	$171.30	100.00
	L	$228,309,000	$0	$91,324,000	$68.52	39.99
	P	$471,088,000	$0	$471,088,000	$171.30	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES. ITERATIONS: 8

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	[illegible]851	31414	19012	16867	7720	2566	6070	1002	3	10597	0
AV/EV RATIO	[illegible].69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$17.5000	$5398	$5730	$6016	$27116	$24701	$104062	$169444	$24666	$3805	$246961
EV	$[illegible]25561	$33640	$30831	$24906	$79155	$115283	$283841	$418501	$24666	$25827	$471088
TAXES	$[illegible].89	$1365	$1449	$1521	$6857	$6247	$26317	$42852	$6238	$962	$62456
1004 TAXES	$[illegible].10	$2528	$2315	$1870	$5945	$8658	$21319	$31433	$1852	$1939	$35382
TAX CHANGE	$[illegible].909	$1161	$866	$349	$912-	$2411	$4998-	$11419-	$4385-	$977	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
EXEMPTIONS	$378065	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN RR INITIAL											
ADJUSTED AV	$[illegible]4839	$8456	$7332	$4962	$26662	$51877	$141920	$230176	$24666	$10330	$471088
NEW TAXES	$[illegible].18	$1489	$1291	$874	$4697	$9139	$25003	$40553	$4345	$1820	$82997
TAX CHANGE	$[illegible]963	$124	$157-	$647-	$2160-	$2892	$1313-	$2299-	$1892-	$857	$20541
% CHANGE	[illegible].20	9.11	-10.86	-42.53	-31.50	46.30	-4.99	-5.36	-30.33	89.13	32.88
TC (100%)	$[illegible]362	$1036-	$1023-	$996-	$1247-	$481	$3684	$9119	$2493	$119-	$47614
% CHANGE	[illegible].21	-41.05	-44.21	-53.26	-20.98	5.55	17.28	29.01	134.56	-6.17	134.56
PLAN RR EQUILIBRIUM											
ADJUSTED AV	$[illegible]6135	$[illegible]65	$7780	$6515	$31521	$45850	$146796	$238960	$31573	$8617	$471088
NEW TAXES	$171.30	$1415	$1332	$1116	$5399	$7654	$25147	$40935	$5408	$1476	$80701
TAX CHANGE	$[illegible]341	$50	$111-	$404-	$1457-	$1607	$1169-	$829-	$513	$1476	$18244
% CHANGE	[illegible].66	3.67	-7.63	-26.68	-21.25	25.73	-4.44	-4.47	-13.29	53.40	29.21
TC (INIT)	$11574	$174-	$40	$242	$702	$1285-	$143	$362	$1063	$343-	$2296-
% CHANGE	[illegible].62	-4.98	[illegible].17	27.73	14.95	-14.06	0.57	0.94	24.46	-18.89	-2.76

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 13 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (1978 YEAR AT 2.5%) — 2 5 — DATE: 82/06/08

CITY OR TOWN: [illegible] BOSTON — 1978 LEVY: $441,311,000 — AS PERCENT OF INCOME: 16.63 — PER CAPITA INCOME: $4,157
LEVY SHORTFALL:

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN RB INITIAL	R1,R2,R3,R4	$2,692,632,000	$378,065,000	$698,988,000	$45.73	25.95
	RC	$299,618,000	$0	$133,118,000	$79.28	44.99
	C	$1,722,916,000	$0	$861,458,000	$88.09	50.00
	I	$419,339,000	$0	$230,636,000	$96.89	54.99
	AH	$74,000	$0	$74,000	$176.18	100.00
	L	$273,694,000	$0	$109,478,000	$70.47	39.99
	P	$471,088,000	$0	$471,088,000	$176.18	100.00
PLAN RB EQUIL.	R1,R2,R3,R4	$2,858,875,000	$378,065,000	$765,485,000	$45.86	26.77
	RC	$261,448,000	$0	$117,652,000	$77.08	44.99
	C	$1,782,109,000	$0	$891,054,000	$85.65	50.00
	I	$435,343,000	$0	$239,439,000	$94.21	54.99
	AH	$95,000	$0	$95,000	$171.30	100.00
	L	$228,309,000	$0	$91,324,000	$68.52	39.99
	P	$471,088,000	$0	$471,088,000	$171.30	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000. — ITERATIONS: 8

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	55851	31414	19612	16867	7720	2566	6070	1002	3	10597	0
AV/EV RATIO	29.69	16.04	18.58	24.15	34.25	21.42	36.66	40.48	100.00	14.73	52.42
AV	$1745000	$169601	$112393	$101480	$209341	$63385	$631657	$169783	$74	$40325	$246961
EV	$5875561	$1056782	$604670	$420096	$611084	$295818	$1722916	$419339	$74	$273694	$471088
TAXES	$[illegible]	$42892	$21424	$25664	$52942	$16030	$159746	$42938	$18	$10198	$62456
100% TAXES	175.10	$79373	$45416	$31552	$45897	$22218	$129406	$31496	$5	$20556	$35382
TAX CHANGE	179909	$36481	$16991	$5888	$7044-	$6188	$30339-	$11441-	$13-	$10358	$27073-
% CHANGE	17.20	85.05	59.77	22.94	-13.30	38.60	-18.99	-26.64	-70.30	101.57	-43.34
EXEMPTIONS	$378065	$157070	$98060	$84335	$38600	$0	$0	$0	$0	$0	$0
PLAN RB INITIAL											
ADJUSTED AV	$[illegible]39	$265642	$143807	$83703	$205833	$133118	$861458	$230636	$74	$109477	$471088
NEW TAXES	$176.18	$46801	$25336	$14747	$36264	$23453	$151774	$40634	$13	$19288	$82997
TAX CHANGE	180963	$3909	$3087-	$10917-	$16677-	$7423	$7971-	$2303-	$5-	$9089	$20541
% CHANGE	9.28	9.11	-10.86	-42.53	-31.50	46.30	-4.99	-5.36	-30.33	89.13	32.88
TC (100%)	180362	$42572-	$20079-	$16805-	$9633-	$1234	$22367	$9158	$7	$1268-	$47614
% CHANGE	18.21	-41.03	-44.21	-53.26	-20.98	5.55	17.28	29.01	134.56	-6.17	134.56
PLAN RB EQUILIBRIUM											
ADJUSTED AV	$2876135	$259551	$152542	$109961	$243349	$117651	$891054	$239438	$94	$91323	$471088
NEW TAXES	$171.30	$44468	$26140	$18837	$41687	$20154	$152644	$41017	$16	$15644	$80701
TAX CHANGE	1.9391	$1578	$2263-	$6426-	$11254-	$4124	$7101-	$1920-	$2-	$5446	$18244
% CHANGE	0.66	3.67	-1.63	-26.60	-21.25	25.73	-4.44	-4.47	-13.29	53.40	29.21
TC (INIT)	111574	$2933-	1803	$4090	$5423	$3298-	$870	$383	$3	$3643-	$2296-
% CHANGE	2.62	-4.98	3.17	27.73	14.95	-14.06	0.57	0.94	24.46	-18.89	-2.76

ALL CITIES AND TOWNS (INFLATED) CRAYZY2L/5R DATE: 78/09/22

CITY OR TOWN: CITIES >= 50,000 1976 LEVY: $1,296,762,000 AS PERCENT OF INCOME: 9.52 PER CAPITA INCOME: $5,692

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$14,808,076,000	$2,017,855,000	$3,905,376,000	$43.15	26.37
INITIAL	RC	$453,539,000	$0	$204,092,000	$73.63	44.99
	C	$4,040,462,000	$0	$2,020,231,000	$81.61	50.00
	I	$1,346,649,000	$0	$740,767,000	$89.99	54.99
	AH	$1,235,000	$0	$1,235,000	$163.63	100.00
	L	$776,031,000	$0	$311,212,000	$65.45	39.99
	P	$1,315,910,000	$0	$1,315,910,000	$163.63	100.00
PLAN R2	R1,R2,R3,R4	$15,431,963,000	$2,017,855,000	$4,154,930,000	$42.21	26.02
EQUIL.	RC	$414,322,000	$0	$186,445,000	$70.55	44.99
	C	$4,033,199,000	$0	$2,016,599,000	$76.38	50.00
	I	$1,376,545,000	$0	$757,099,000	$86.22	54.99
	AH	$912,000	$0	$912,000	$156.77	100.00
	L	$655,980,000	$0	$262,392,000	$62.71	39.99
	P	$1,315,910,000	$0	$1,315,910,000	$156.77	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250361	79006	40476	25706	6377	25066	4309	19	57087	0
AV/EV RATIO	38.00	32.00	28.00	30.00	43.00	30.00	47.00	54.00	88.00	22.00	67.00
AV	$87559474	$11664	$9390	$7754	$39150	$21741	$75885	$171053	$57789	$5052	$884787
EV	$227441033	$35735	$33054	$25275	$78735	$71121	$161192	$312566	$65010	$13628	$1315909
TAXES	$140.00	$1379	$1463	$1385	$5092	$4092	$12740	$27054	$4423	$458	$149312
100% TAXES	$57.00	$1837	$1891	$1819	$4604	$4870	$10156	$18388	$3556	$832	$77993
TAX CHANGE +	$190434	$457	$430	$251	$53	$1065	$0	$0	$0	$378	$0
TAX CHANGE -	$190445-	$0	$1-	$18-	$541-	$287-	$2583-	$8665-	$867-	$3-	$71318-
NET % CHANGE	19.00	23.00	29.00	10.00	-9.00	19.00	-20.00	-32.00	-19.00	81.00	-47.00
EXEMPTIONS	$2017855	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$8498823	$9294	$8226	$5110	$26494	$32004	$80596	$171911	$65010	$5451	$1315909
NEW TAXES	$152.00	$1287	$1252	$863	$3965	$5444	$13098	$26187	$9001	$876	$205537
TAX CHANGE +	$126326	$32	$45	$1	$13	$1412	$774	$955	$4712	$423	$57386
TAX CHANGE -	$126327-	$125-	$256-	$523-	$1140-	$61-	$416-	$1822-	$134-	$2-	$1161-
NET % CHANGE	9.00	-6.00	-14.00	-37.00	-22.00	33.00	2.00	-3.00	103.00	91.00	37.00
TC (100%) +	$243895	$0	$0	$0	$54	$573	$2942	$7799	$5445	$87	$127544
TC (100%) -	$243885-	$549-	$639-	$755-	$693-	$0	$0	$0	$0	$21-	$0
NET % CHANGE	18.00	-29.00	-55.00	-46.00	-13.00	11.00	28.00	42.00	153.00	5.00	163.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$8694287	$9611	$8772	$6353	$29009	$29237	$80451	$175701	$47995	$4596	$1315909
NEW TAXES	$149.00	$1297	$1319	$1062	$4319	$4830	$12774	$26227	$6464	$714	$200139
TAX CHANGE +	$27949	$15	$26	$0	$6	$790	$341	$441	$2098	$258	$51880
TAX CHANGE -	$67942-	$96-	$176-	$323-	$779-	$57-	$306-	$1206-	$57-	$1-	$1052-
NET % CHANGE	6.00	-5.00	-5.00	-23.00	-15.00	18.00	0.00	-3.00	46.00	56.00	34.00
TC (INIT) +	$39515	$29	$60	$199	$379	$16	$127	$673	$76	$8	$108
TC (INIT) -	$39507-	$18-	$19-	$0	$15-	$630-	$451-	$1613-	$1614-	$184-	$5506-
NET % CHANGE	3.00	0.00	5.00	23.00	8.00	-11.00	-2.00	0.00	-26.00	-18.00	-2.00

CITY OR TOWN: CITIES >= 50,000 — 1978 LEVY: $1,296,762,000 — AS PERCENT OF INCOME: 9.52 — PER CAPITA INCOME: $5,692

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMP	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$14,808,076,000	$2,017,855,000	$3,965,376,000	$43.15	26.57
	RC	$453,539,000	$0	$204,092,000	$73.63	44.99
	C	$4,040,462,000	$0	$2,020,231,000	$81.81	50.00
	I	$1,346,849,000	$0	$740,767,000	$89.99	54.99
	AH	$1,235,000	$0	$1,235,000	$163.63	100.00
	L	$776,031,000	$0	$311,212,000	$65.45	39.99
	P	$1,315,910,000	$0	$1,315,910,000	$163.63	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$15,431,963,000	$2,017,855,000	$4,154,930,000	$42.21	26.92
	RC	$414,322,000	$0	$166,445,000	$70.55	44.99
	C	$4,033,199,000	$0	$2,016,599,000	$78.38	50.00
	I	$1,376,545,000	$0	$757,099,000	$86.22	54.99
	AH	$912,000	$0	$912,000	$156.77	100.00
	L	$655,980,000	$0	$262,392,000	$62.71	39.99
	P	$1,315,910,000	$0	$1,315,910,000	$156.77	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	496429	250381	79001	41476	25706	6377	25066	4309	19	57067	0
AV/EV RATIO	36.00	32.00	28.00	30.00	43.00	30.00	47.00	54.00	88.00	22.00	67.00
AV	$8755474	$2921013	$741890	$375915	$677668	$136095	$1902151	$737069	$1090	$174238	$884787
EV	$22744103	$8947524	$2611346	$1225235	$2023971	$453538	$4040461	$1346848	$1235	$778031	$1315909
TAXES	$148.00	$345514	$115597	$47177	$130904	$26099	$319341	$116575	$164	$26149	$149312
100% TAXES	$57.00	$459970	$149437	$78493	$118367	$31061	$254574	$79235	$87	$47545	$77993
TAX CHANGE +	$190434	$114456	$33989	$12265	$1373	$6793	$0	$0	$0	$21616	$0
TAX CHANGE -	$190445-	$0	$149-	$890-	$13910-	$1831-	$64706-	$37340-	$16-	$221-	$71318-
NET % CHANGE	14.00	33.00	29.00	16.00	-2.00	14.00	-20.00	-32.00	-19.00	81.00	-47.00
EXEMPTIONS	$2017855	$1251905	$395040	$242600	$128530	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$8498823	$2327104	$649498	$247714	$661058	$204092	$2020230	$740706	$1235	$311212	$1315909
NEW TAXES	$152.00	$322210	$90922	$41858	$101929	$34723	$328329	$112842	$171	$50164	$205537
TAX CHANGE +	$126326	$6145	$3583	$64	$350	$9010	$19423	$4117	$69	$3454	$57386
TAX CHANGE -	$126327-	$31379-	$12025-	$2583-	$2932-	$389-	$10455-	$7851-	$2-	$140-	$1161-
NET % CHANGE	9.00	-8.00	-14.00	-37.00	-22.00	33.00	2.00	-3.00	103.00	91.00	37.00
TC (100%) +	$24,8895	$0	$6	$0	$1392	$3659	$73754	$33606	$163	$2834	$127544
TC (100%) -	$24,8865-	$13769Q-	$5651S-	$3663-	$1783Q-	$0	$0	$0	$0	$1215-	$0
NET % CHANGE	18.00	-29.00	-33.00	-46.00	-13.00	11.00	26.00	42.00	153.00	5.00	163.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$8694267	$2410554	$693111	$307994	$747270	$186445	$2016599	$757059	$911	$262391	$1315909
NEW TAXES	$149.00	$334863	$104260	$51305	$111042	$30805	$320215	$113013	$122	$40796	$200139
TAX CHANGE +	$17949	$3463	$2110	$79	$1164	$5038	$8157	$1903	$39	$14746	$51880
TAX CHANGE -	$17992-	$24135-	$13447-	$5067-	$2027-	$332-	$7682-	$5466-	$1-	$190-	$1052-
NET % CHANGE	0.00	-5.00	-5.00	-23.00	-15.00	18.00	0.00	-3.00	40.00	30.00	34.00
TC (UNIT) +	$39515	$7285	$4678	$1994	$9521	$1102	$32094	$2008	$1	$41	$108
TC (UNIT) -	$39507-	$47C2-	$3135-	$942-	$1467-	$4017-	$11310-	$2217-	$39-	$1409-	$5506-

CITY OR TOWN: CITIES: 25,000-50,000 1978 LEVY: $659,007,000 AS PERCENT OF INCOME: 6.30 PER CAPITA INCOME: $6,211

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$13,601,450,000	$1,511,195,000	$3,929,365,000	$28.53	28.88
INITIAL	RC	$172,099,000	$0	$77,445,000	$44.44	44.99
	C	$2,089,420,000	$0	$1,044,710,000	$49.38	50.00
	I	$1,386,633,000	$0	$762,648,000	$54.32	54.99
	AH	$3,098,000	$0	$3,098,000	$98.77	100.00
	L	$676,287,000	$0	$271,315,000	$39.50	39.99
	P	$986,599,000	$0	$986,599,000	$98.77	100.00
PLAN R2	R1,R2,R3,R4	$13,974,853,000	$1,511,195,000	$4,078,746,000	$28.10	29.18
EQUIL.	RC	$171,761,000	$0	$77,292,000	$43.33	44.99
	C	$2,023,091,000	$0	$1,011,546,000	$46.14	50.00
	I	$1,391,425,000	$0	$765,284,000	$52.95	54.99
	AH	$2,994,000	$0	$2,994,000	$96.29	100.00
	L	$636,142,000	$0	$254,457,000	$38.51	39.99
	P	$986,599,000	$0	$986,599,000	$96.29	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	8326	6615	3051	13090	3537	296	10018	0
AV/EV RATIO	44.00	41.00	36.00	36.00	40.00	49.00	50.00	50.00	41.00	41.00	57.00
AV	$8507664	$10423	$12650	$13474	$39968	$27873	$90196	$222004	$9265	$3513	$567852
EV	$18917560	$44474	$38774	$35091	$108594	$56407	$159619	$392036	$10395	$6392	$986599
TAXES	$77.00	$1326	$1321	$1334	$4293	$2761	$6572	$20128	$664	$197	$56039
100% TAXES	$35.00	$1504	$1566	$1602	$4174	$2216	$5530	$14271	$319	$256	$33786
TAX CHANGE +	$61846	$177	$250	$212	$202	$42	$55	$56	$10	$62	$0
TAX CHANGE -	$61651-	$0	$36-	$65-	$322-	$547-	$1046-	$5064-	$349-	$5-	$22252-
NET % CHANGE	9.00	13.00	10.00	11.00	-2.00	-12.00	-15.00	-29.00	-52.00	28.00	-39.00
EXEMPTIONS	$1511195	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$7075199	$12709	$10509	$9036	$38437	$25303	$79804	$215019	$10395	$3357	$986599
NEW TAXES	$93.00	$1175	$1164	$974	$4011	$2810	$7523	$20321	$797	$266	$84240
TAX CHANGE +	$66542	$17	$45	$30	$153	$103	$1073	$2518	$209	$69	$28270
TAX CHANGE -	$66542-	$169-	$203-	$349-	$434-	$115-	$122-	$2325-	$130-	$2-	$69-
NET % CHANGE	10.00	-11.00	-11.00	-26.00	-6.00	1.00	14.00	0.00	20.00	-33.00	50.00
TC (100%) +	$103637	$0	$0	$0	$142	$595	$1993	$6050	$462	$134	$50453
TC (100%) -	$103633-	$329-	$402-	$508-	$305-	$1-	$0	$0	$0	$3-	$0
NET % CHANGE	15.00	-21.00	-25.00	-34.00	-3.00	26.00	36.00	42.00	153.00	11.00	149.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$7176917	$13264	$10987	$9421	$39265	$25333	$77276	$210365	$10040	$3141	$986599
NEW TAXES	$91.00	$1202	$1197	$1114	$4045	$2775	$7100	$19966	$705	$261	$82596
TAX CHANGE +	$51732	$11	$30	$26	$97	$100	$705	$1554	$141	$64	$26626
TAX CHANGE -	$51729-	$134-	$154-	$156-	$340-	$87-	$97-	$1714-	$106-	$1-	$68-
NET % CHANGE	7.00	-9.00	-9.00	-17.00	-5.00	0.00	9.00	0.00	0.00	31.00	47.00
TC (INIT) +	$15138	$34	$51	$142	$94	$30	$29	$811	$32	$8	$1
TC (INIT) -	$15135-	$6-	$17-	$12-	$61-	$65-	$372-	$772-	$127-	$25-	$1644-
NET % CHANGE	2.00	4.00	2.00	1.00	0.00	-1.00	-4.00	-1.00	-11.00	-8.00	-1.00

CITY OR TOWN: CITIES: 25,000-50,000 1976 LEVY: $659,007,000 AS PERCENT OF INCOME: 6.30 PER CAPITA INCOME: 10,211

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$13,601,450,000	$1,511,195,000	$3,529,385,000	$28.53	26.00
	RC	$172,099,000	$0	$77,445,000	$44.44	44.99
	C	$2,089,420,000	$0	$1,044,710,000	$49.38	50.00
	I	$1,386,633,000	$0	$702,646,000	$54.32	54.99
	AH	$3,096,000	$0	$3,098,000	$98.77	100.00
	L	$676,267,000	$0	$271,315,000	$39.50	39.99
	P	$986,599,000	$0	$986,599,000	$98.77	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$13,974,853,000	$1,511,195,000	$4,078,746,000	$28.10	29.18
	RC	$171,761,000	$0	$77,292,000	$43.33	44.99
	C	$2,023,691,000	$0	$1,011,546,000	$48.14	50.00
	I	$1,391,425,000	$0	$705,284,000	$52.95	54.99
	AH	$2,994,000	$0	$2,994,000	$96.29	100.00
	L	$636,142,000	$0	$254,457,000	$38.51	39.99
	P	$986,599,000	$0	$986,599,000	$96.29	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	403033	252107	34991	8326	6815	3051	13090	3537	296	41618	0
AV/EV RATIO	44.00	41.00	36.00	38.00	46.00	49.00	56.00	56.00	69.00	41.00	57.00
AV	$6507869	$4644815	$498023	$112167	$347349	$84431	$1160670	$785231	$2761	$280945	$567852
EV	$18917506	$11212436	$1356771	$292172	$740070	$172099	$2089419	$1386632	$3097	$676267	$986599
TAXES	$77.00	$334385	$40256	$11112	$29261	$8426	$86032	$71195	$197	$16094	$56039
100% TAXES	$35.00	$379104	$54608	$12340	$28446	$6762	$72399	$50477	$93	$26098	$33766
TAX CHANGE +	$61846	$44798	$8763	$1772	$1381	$7	$67	$24	$0	$5030	$0
TAX CHANGE -	$61851-	$0	$211-	$545-	$2196-	$1671-	$13700-	$20742-	$104-	$426-	$22252-
NET % CHANGE	9.00	13.00	18.00	11.00	-2.00	-19.00	-15.00	-29.00	-52.00	28.00	-39.00
EXEMPTIONS	$1511195	$1260535	$174955	$41650	$34075	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$7075199	$3224435	$367753	$79238	$221952	$77444	$1044709	$762647	$3097	$271314	$986599
NEW TAXES	$93.00	$296231	$40740	$8812	$27341	$8574	$98481	$71677	$237	$23165	$84240
TAX CHANGE +	$66542	$4502	$1594	$323	$1042	$499	$14054	$8909	$60	$3764	$28270
TAX CHANGE -	$66542-	$42656-	$7411-	$3323-	$2963-	$351-	$11605-	$8226-	$46-	$193-	$69-
NET % CHANGE	10.00	-11.00	-11.00	-26.00	-6.00	1.00	14.00	0.00	20.00	43.00	50.00
TC (100%) +	$103637	$0	$0	$5	$973	$1817	$26068	$21403	$194	$2795	$50453
TC (100%) -	$103633-	$82953-	$14067-	$4233-	$2078-	$5-	$6-	$0	$0	$267-	$0
NET % CHANGE	15.00	-21.00	-25.00	-34.00	-5.00	26.00	36.00	42.00	155.00	11.00	149.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$7172917	$3344091	$384448	$82609	$267596	$77292	$1011545	$765283	$2993	$254456	$986599
NEW TAXES	$91.00	$303283	$41917	$9196	$27569	$8466	$93993	$71020	$210	$21152	$82596
TAX CHANGE +	$51732	$2644	$1015	$218	$665	$367	$9236	$5490	$42	$1716	$26626
TAX CHANGE -	$51729-	$33940-	$5027-	$2134-	$2358-	$266-	$1277-	$8064-	$29-	$150-	$68-
NET % CHANGE	7.00	-9.00	-9.00	-17.00	-5.00	0.00	9.00	0.00	0.00	31.00	47.00
TC (INIT) +	$15138	$6796	$1795	$1169	$1645	$92	$3812	$1913	$18	$141	$1
TC (INIT) -	$15138-	$11-	$1-	$0	$0	$0	$0	$0	$0	$0	$1046-

ALL CITIES AND TOWNS (INFLATED) CRAZY2L75K DATE: 78/09/22

CITY OR TOWN: TOWNS: 10,000-25,000 1978 LEVY: $671,400,000 AS PERCENT OF INCOME: 7.85 PER CAPITA INCOME: $6,20[illegible]

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$16,278,264,000	$1,844,940,000	$4,666,365,000	$14.26	28.66
	RC	$240,542,000	$0	$108,244,000	$22.39	44.99
	C	$1,776,919,000	$0	$666,460,000	$24.68	50.00
	I	$1,100,349,000	$0	$605,192,000	$27.37	54.99
	AH	$27,572,000	$0	$27,572,000	$49.77	100.00
	L	$1,046,202,000	$0	$261,550,000	$12.49	25.00
	P	$967,331,000	$0	$967,331,000	$49.77	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$16,797,559,000	$1,844,940,000	$4,874,084,000	$14.24	29.01
	RC	$230,333,000	$0	$103,650,000	$22.09	44.99
	C	$1,678,045,000	$0	$839,022,000	$24.54	50.00
	I	$1,047,330,000	$0	$576,031,000	$27.00	54.99
	AH	$21,139,000	$0	$21,139,000	$49.09	100.00
	L	$1,045,356,000	$0	$261,339,000	$12.27	25.00
	P	$967,331,000	$0	$967,331,000	$49.09	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	338664	22102	3928	4294	4010	17259	2950	1100	11[illegible]16	0
AV/EV RATIO	56.00	54.00	52.00	53.00	59.00	61.00	63.00	64.00	89.00	41.00	78.00
AV	$12051061	$23401	$19251	$20567	$89160	$36917	$65321	$242347	$21039	$5709	$756459
EV	$21437179	$43339	$36574	$38752	$149067	$59866	$102956	$372999	$23606	$9002	$967331
TAXES	$55.00	$1295	$1175	$1285	$5221	$2141	$3671	$14704	$1016	$198	$39617
100% TAXES	$32.00	$1350	$1400	$1331	$4690	$1961	$3308	$12252	$741	$262	$28016
TAX CHANGE +	$28416	$54	$48	$80	$48	$22	$23	$20	$0	$65	$0
TAX CHANGE -	$26422-	$0	$17-	$34-	$379-	$196-	$306-	$2472-	$275-	$1-	$10801-
NET % CHANGE	4.00	4.00	2.00	3.00	-6.00	-8.00	-9.00	-16.00	-27.00	32.00	-27.00
EXEMPTIONS	$1844940	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$7524714	$12335	$9629	$10501	$54627	$20939	$51478	$205149	$23606	$2250	$967331
NEW TAXES	$89.00	$1115	$941	$1059	$5209	$2011	$4712	$18115	$1258	$205	$74966
TAX CHANGE +	$72860	$0	$5	$39	$478	$479	$1067	$3632	$1272	$27	$35365
TAX CHANGE -	$72859-	$181-	$238-	$265-	$290-	$9-	$20-	$222-	$30-	$22-	$16-
NET % CHANGE	10.00	-13.00	-19.00	-17.00	0.00	21.00	28.00	23.00	122.00	2.00	89.00
TC (100%) +	$94614	$0	$3	$6	$423	$644	$1411	$5960	$1517	$2	$40150
TC (100%) -	$94608-	$235-	$267-	$270-	$104-	$0	$8-	$97-	$0	$61-	$0
NET % CHANGE	14.00	-17.00	-21.00	-20.00	0.00	32.00	42.00	47.00	204.00	-22.00	160.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$7642596	$12093	$10312	$11156	$54805	$25796	$48613	$195264	$18098	$2248	$967331
NEW TAXES	$87.00	$1150	$997	$1114	$5144	$2446	$4358	$16061	$1677	$198	$73336
TAX CHANGE +	$56510	$0	$3	$25	$174	$313	$709	$2344	$676	$21	$33740
TAX CHANGE -	$58505-	$149-	$180-	$196-	$252-	$8-	$21-	$187-	$17-	$20-	$21-
NET % CHANGE	6.00	-11.00	-15.00	-13.00	-1.00	14.00	18.00	14.00	65.00	0.00	85.00
TC (INIT) +	$14463	$36	$58	$71	$52	$1	$4	$34	$12	$2	$0
TC (INIT) -	$14478-	$0	$2-	$15-	$117-	$167-	$357-	$1216-	$593-	$6-	$1629-
NET % CHANGE	2.00	3.00	5.00	5.00	-1.00	-6.00	-7.00	-8.00	-25.00	-1.00	-2.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1976 BASE DATA — PAGE NO. 6 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (INFLATED) — CRAYZY2L/5K — DATE: 78/09/22

CITY OR TOWN: TOWNS: 10,000-25,000 — 1976 LEVY: $671,460,000 — AS PERCENT OF INCOME: 7.85 — PER CAPITA INCOME: $6,204

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$16,276,264,000	$1,844,940,000	$4,661,365,000	$14.26	28.66
	RC	$240,542,000	$0	$106,244,000	$22.39	44.99
	C	$1,776,919,000	$0	$888,460,000	$24.88	50.00
	I	$1,100,349,000	$0	$605,192,000	$27.37	54.99
	AH	$27,572,000	$0	$27,572,000	$49.77	100.00
	L	$1,046,202,000	$0	$261,550,000	$12.44	25.00
	P	$967,331,000	$0	$967,331,000	$49.77	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$16,797,559,000	$1,844,940,000	$4,874,084,000	$14.24	29.01
	RC	$230,333,000	$0	$103,650,000	$22.09	44.99
	C	$1,678,045,000	$0	$839,022,000	$24.54	50.00
	I	$1,047,330,000	$0	$576,031,000	$27.00	54.99
	AH	$21,139,000	$0	$21,139,000	$49.09	100.00
	L	$1,045,356,000	$0	$261,339,000	$12.27	25.00
	P	$967,331,000	$0	$967,331,000	$49.09	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	510601	336004	22102	3926	4294	4016	17259	2950	1166	110218	0
AV/EV RATIO	56.00	54.00	52.00	53.00	59.00	61.00	63.00	64.00	89.00	41.00	78.00
AV	$12050661	$7952309	$425904	$80769	$302855	$190336	$1127378	$714925	$24574	$437534	$756459
EV	$21437179	$14677586	$808359	$152220	$640097	$240542	$1776919	$1100348	$27571	$1046202	$967331
TAXES	$55.00	$438851	$25970	$5049	$22421	$8603	$63356	$43378	$1107	$23022	$39617
100% TAXES	$32.00	$257253	$26059	$5230	$21001	$7907	$57107	$30145	$865	$30468	$28816
TAX CHANGE +	$28416	$18562	$1080	$315	$209	$91	$411	$60	$0	$7665	$0
TAX CHANGE -	$28422-	$160-	$391-	$134-	$1629-	$786-	$6662-	$7293-	$321-	$219-	$10601-
NET % CHANGE	4.00	4.00	2.00	3.00	-8.00	-8.00	-9.00	-16.00	-27.00	32.00	-27.00
EXEMPTIONS	$1844940	$1693320	$110510	$19640	$21470	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$7524714	$4177714	$212833	$41246	$234568	$108243	$888459	$605191	$27571	$261550	$967331
NEW TAXES	$89.00	$377659	$20813	$4160	$23368	$10494	$81326	$53440	$2638	$23893	$74966
TAX CHANGE +	$72860	$239	$120	$156	$1195	$1927	$18416	$10717	$1900	$3239	$35365
TAX CHANGE -	$72859-	$61432-	$5277-	$1044-	$1248-	$36-	$446-	$655-	$35-	$2663-	$16-
NET % CHANGE	10.00	-13.00	-19.00	-17.00	6.00	21.00	28.00	23.00	122.00	2.00	89.00
TC (100%) +	$94614	$0	$74	$24	$1617	$2569	$24356	$17582	$1772	$244	$46150
TC (100%) -	$94606-	$79594-	$5919-	$1093-	$450-	$2-	$1140-	$287-	$0	$7119-	$0
NET % CHANGE	14.00	-17.00	-21.00	-20.00	6.00	32.00	42.00	47.00	204.00	-22.00	160.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$7642596	$4306640	$227932	$43831	$239678	$103649	$839022	$576031	$21139	$261338	$967331
NEW TAXES	$87.00	$389739	$22044	$4577	$22068	$9826	$75224	$49741	$1959	$23129	$73336
TAX CHANGE +	$56510	$134	$66	$96	$749	$1458	$12245	$8915	$792	$2506	$33740
TAX CHANGE -	$56505-	$49247-	$3993-	$769-	$1082-	$32-	$379-	$553-	$20-	$2404-	$21-
NET % CHANGE	6.00	-11.00	-15.00	-13.00	-1.00	14.00	18.00	14.00	65.00	0.00	85.00
TC (INIT) +	$14483	$12195	$1216	$276	$224	$7	$69	$102	$14	$304	$0
TC (INIT) -	$14476-	$1119-	$55-	$7-	$50-	$67-	$1170-	$1001-	$69-	$773-	$1629-

ALL CITIES AND TOWNS (INFLATED) CRAYZY2L75K DATE: 78/09/22

CITY OR TOWN: TOWNS < 10,000 1978 LEVY: $332,923,000 AS PERCENT OF INCOME: 7.90 PER CAPITA INCOME: $5,816

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$10,372,417,000	$1,209,175,000	$2,939,791,000	$26.16	26.34
INITIAL	RC	$285,706,000	$0	$128,568,000	$41.57	44.99
	C	$646,563,000	$0	$424,291,000	$46.19	50.00
	I	$667,539,000	$0	$367,147,000	$50.81	54.99
	AM	$34,597,000	$0	$34,597,000	$92.38	100.00
	L	$1,379,015,000	$0	$344,954,000	$23.09	25.00
	P	$769,099,000	$0	$769,099,000	$92.38	100.00
PLAN R2	R1,R2,R3,R4	$10,644,909,000	$1,209,175,000	$3,048,788,000	$25.69	28.64
EQUIL.	RC	$276,242,000	$0	$124,309,000	$40.36	44.99
	C	$805,391,000	$0	$402,696,000	$44.84	50.00
	I	$641,510,000	$0	$352,830,000	$48.33	54.99
	AM	$30,560,000	$0	$30,560,000	$89.69	100.00
	L	$1,388,886,000	$0	$347,222,000	$22.42	25.00
	P	$769,099,000	$0	$769,099,000	$89.69	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AM	LAND L	PERSONAL P
# PARCELS	389090	227109	10058	1845	2223	4474	9458	1695	2240	129188	0
AV/EV RATIO	50.00	50.00	52.00	53.00	60.00	61.00	64.00	73.00	89.00	52.00	70.00
AV	$8355240	$23766	$23486	$26294	$66128	$39307	$57705	$259496	$13785	$5971	$542298
EV	$14357756	$42070	$44690	$49624	$112944	$63859	$89721	$352263	$15444	$10080	$769099
TAXES	$39.00	$957	$1084	$1190	$2875	$1573	$2423	$9441	$816	$163	$24575
100% TAXES	$23.00	$993	$1135	$1221	$2756	$1449	$2198	$8067	$432	$202	$16949
TAX CHANGE +	$15840	$40	$71	$75	$79	$16	$16	$23	$0	$40	$2
TAX CHANGE -	$15842-	$3-	$21-	$44-	$158-	$143-	$243-	$1398-	$383-	$1-	$7628-
NET % CHANGE	4.00	3.00	4.00	2.00	-4.00	-7.00	-9.00	-14.00	-47.00	25.00	-31.00
EXEMPTIONS	$1209175	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$5006446	$11626	$12076	$14069	$40177	$26736	$44860	$193744	$13444	$2670	$769099
NEW TAXES	$66.00	$615	$944	$1058	$2862	$1935	$3211	$11843	$1119	$157	$44971
TAX CHANGE +	$40753	$2	$30	$54	$223	$394	$614	$2775	$509	$17	$21077
TAX CHANGE -	$40751-	$144-	$171-	$116-	$236-	$32-	$26-	$372-	$136-	$24-	$681-
NET % CHANGE	12.00	-14.00	-12.00	-11.00	0.00	23.00	32.00	25.00	45.00	-3.00	82.00
TC (100%) +	$49644	$0	$13	$25	$209	$488	$1014	$3864	$757	$1	$28022
TC (100%) -	$49635-	$178-	$204-	$167-	$164-	$1-	$1-	$87-	$0	$46-	$0
NET % CHANGE	14.00	-17.00	-16.00	-13.00	3.00	33.00	46.00	46.00	175.00	-22.00	165.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$5075514	$12212	$13318	$15036	$40325	$27164	$42577	$186190	$13643	$2687	$769099
NEW TAXES	$65.00	$639	$969	$1079	$2821	$1827	$2971	$11089	$1032	$155	$44087
TAX CHANGE +	$34112	$2	$20	$36	$154	$262	$372	$1941	$299	$14	$20177
TAX CHANGE -	$34106-	$120-	$135-	$141-	$196-	$29-	$24-	$293-	$78-	$22-	$666-
NET % CHANGE	10.00	-12.00	-10.00	-9.00	-1.00	10.00	22.00	17.00	26.00	-5.00	79.00
TC (INIT) +	$6746	$24	$30	$39	$40	$4	$2	$82	$57	$1	$19
TC (INIT) -	$6744-	$0	$11-	$19-	$71-	$112-	$242-	$836-	$214-	$3-	$903-
NET % CHANGE	2.00	2.00	1.00	1.00	-1.00	-5.00	-7.00	-6.00	-13.00	-1.00	-1.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1978 BASE DATA — PAGE NO. 16 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (INFLATED) — CRAY/Y22/SR — DATE: 78/09/22

CITY OR TOWN: TOWNS < 10,000 — 1978 LEVY: $332,923,000 — AS PERCENT OF INCOME: 7.90 — PER CAPITA INCOME: $5,016

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2	R1,R2,R3,R4	$10,372,417,000	$1,209,175,000	$2,939,791,000	$26.16	28.34
INITIAL	RC	$285,706,000	$0	$126,568,000	$41.57	44.99
	C	$848,583,000	$0	$424,291,000	$46.19	50.00
	I	$667,539,000	$0	$367,147,000	$50.81	54.99
	AH	$34,597,000	$0	$34,597,000	$92.36	100.00
	L	$1,379,815,000	$0	$344,954,000	$23.09	25.00
	P	$769,099,000	$0	$769,099,000	$92.36	100.00
PLAN R2	R1,R2,R3,R4	$10,644,909,000	$1,209,175,000	$3,048,788,000	$25.69	28.84
EQUIL.	RC	$276,242,000	$0	$124,309,000	$41.36	44.99
	C	$805,391,000	$0	$402,696,000	$44.64	50.00
	I	$641,510,000	$0	$352,830,000	$49.33	54.99
	AH	$30,560,000	$0	$30,560,000	$89.69	100.00
	L	$1,388,868,000	$0	$347,222,000	$22.42	25.00
	P	$769,099,000	$0	$769,099,000	$89.69	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	389090	227109	10658	1645	2223	4474	9458	1695	1240	1911	0
AV/EV RATIO	58.00	56.00	52.00	53.00	60.00	61.00	64.00	73.00	89.00	52.00	70.00
AV	$3059290	$2397651	$250323	$48514	$151950	$175863	$545761	$491146	$30654	$197110	$542298
EV	$14357756	$9554578	$476313	$90449	$251075	$285705	$848583	$667539	$34596	$1379815	$769099
TAXES	$39.00	$217385	$11561	$2195	$6393	$7039	$22920	$17891	$1028	$21126	$24575
100% TAXES	$23.00	$225736	$12097	$2253	$6128	$6483	$20788	$15267	$966	$6219	$10949
TAX CHANGE +	$15840	$9108	$760	$140	$176	$103	$175	$45	$0	$5287	$2
TAX CHANGE -	$15842-	$815-	$224-	$82-	$441-	$839-	$2307-	$2649-	$860-	$194-	$7628-
NET % CHANGE	4.00	3.00	4.00	2.00	-9.00	-7.00	-9.00	-14.00	-47.00	24.00	-31.00
EXEMPTIONS	$1209175	$1135545	$53290	$9225	$11115	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$5006446	$2086216	$137235	$26954	$89315	$128567	$424291	$367146	$24596	$344955	$769099
NEW TAXES	$66.00	$185179	$10065	$1953	$3603	$5660	$30373	$22443	$2064	$20292	$44971
TAX CHANGE +	$40753	$561	$326	$100	$1497	$1767	$7703	$5259	$1141	$3298	$21077
TAX CHANGE -	$40751-	$32837-	$1822-	$343-	$526-	$145-	$249-	$1706-	$306-	$3131-	$681-
NET % CHANGE	12.00	-14.00	-12.00	-11.00	0.00	23.00	32.00	25.00	45.00	-5.00	82.00
TC (100%) +	$49644	$35	$145	$46	$466	$2184	$9594	$7322	$1695	$1150	$26022
TC (100%) -	$49639-	$40644-	$2176-	$346-	$231-	$7-	$9-	$1166-	$0	$1051-	$0
NET % CHANGE	14.00	-17.00	-16.00	-13.00	3.00	33.00	46.00	46.00	175.00	-22.00	165.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$5073504	$2789452	$141949	$27741	$89643	$124306	$402695	$352830	$30560	$347221	$769099
NEW TAXES	$65.00	$190568	$10335	$1990	$3654	$5174	$28113	$21014	$2313	$20037	$44087
TAX CHANGE +	$34112	$457	$221	$67	$1343	$1265	$5410	$3679	$1060	$1027	$20177
TAX CHANGE -	$34108-	$27275-	$1447-	$272-	$1441-	$1129-	$227-	$3555-	$1176-	$2916-	$666-
NET % CHANGE	10.00	-12.00	-10.00	-9.00	-1.00	16.00	22.00	17.00	20.00	-5.00	79.00
TC (INIT) +	$6746	$5605	$385	$73	$90	$18	$25	$156	$129	$240	$19
TC (INIT) -	$6744-	$1166-	$119-	$35-	$159-	$504-	$2295-	$1065-	$481-	$875-	$903-

ALL CITIES AND TOWNS (INFLATED) CRAZY.L75K DATE: 78/09/22

CITY OR TOWN: STATE TOTALS 1978 LEVY: $2,960,150,000 AS PERCENT OF INCOME: 8.03 PER CAPITA INCOME: $5,945

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TOTAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$55,060,210,000	$6,583,165,000	$15,440,918,000	$25.90	28.04
	RC	$1,151,886,000	$0	$518,349,000	$41.57	44.99
	C	$8,755,384,000	$0	$4,377,692,000	$46.19	50.00
	I	$4,501,370,000	$0	$2,475,753,000	$50.01	54.99
	AH	$66,502,000	$0	$66,502,000	$92.38	100.00
	L	$3,882,330,000	$0	$1,109,031,000	$23.09	28.00
	P	$4,038,939,000	$0	$4,038,939,000	$92.36	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$50,849,284,000	$6,583,165,000	$16,156,548,000	$25.49	28.41
	RC	$1,092,658,000	$0	$491,696,000	$40.36	44.99
	C	$8,539,726,000	$0	$4,269,863,000	$44.84	50.00
	I	$4,456,809,000	$0	$2,451,245,000	$49.33	54.99
	AH	$55,606,000	$0	$55,606,000	$89.69	100.00
	L	$3,726,365,000	$0	$1,125,409,000	$22.42	28.00
	P	$4,038,939,000	$0	$4,038,939,000	$89.69	100.00

TAX BILL SUMMARY: TOTALS & PERSONAL PROPERTY - X $1000. ALL OTHER FIGURES ARE PARCEL AVERAGES.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	146759	62575	39038	17926	64873	12691	3725	373311	0
AV/EV RATIO	48.00	47.00	36.00	35.00	48.00	47.00	54.00	60.00	69.00	41.00	68.00
AV	$37068239	$19510	$13057	$9866	$45072	$30539	$73312	$215031	$13210	$5214	$2751396
EV	$77456625	$41555	$35791	$28127	$93662	$64279	$134961	$354069	$17852	$10128	$4038939
TAXES	$78.00	$1250	$1358	$1366	$4840	$2799	$7576	$19623	$885	$425	$269544
100% TAXES	$39.00	$1424	$1655	$1971	$9455	$2913	$6240	$14273	$535	$325	$157545
TAX CHANGE +	$296538	$175	$303	$230	$80	$309	$10	$10	$0	$103	$2
TAX CHANGE -	$296561-	$0	$6-	$26-	$465-	$275-	$1347-	$5360-	$349-	$2-	$112000-
NET % CHANGE	10.00	13.00	21.00	14.00	-2.00	4.00	-17.00	-27.00	-39.00	-44.00	-41.00
EXEMPTIONS	$6583165	$5000	$5000	$5000	$5000	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$28107164	$11622	$9316	$6250	$32452	$26925	$67480	$195079	$17852	$3102	$4038939
NEW TAXES	$105.00	$1105	$1162	$896	$4047	$3484	$8301	$20534	$1533	$305	$409716
TAX CHANGE +	$300482	$12	$36	$10	$74	$736	$910	$2285	$751	$96	$142100
TAX CHANGE -	$300480-	$157-	$234-	$480-	$872-	$51-	$196-	$1374-	$103-	$15-	$1928-
NET % CHANGE	10.00	-11.00	-14.00	-34.00	-16.00	24.00	9.00	4.00	73.00	35.00	52.00
TC (100%) +	$491792	$0	$1	$1	$119	$572	$2062	$6296	$997	$18	$252170
TC (100%) -	$491767-	$319-	$495-	$870-	$527-	$0	$2-	$35-	$0	$36-	$0
NET % CHANGE	10.00	-22.00	-29.00	-42.00	-9.00	19.00	33.00	43.00	186.00	-6.00	160.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$28589305	$12062	$9862	$7305	$34330	$27430	$65818	$193140	$14927	$2938	$4038939
NEW TAXES	$103.00	$1131	$1216	$1071	$4277	$3196	$7977	$20044	$1236	$274	$400160
TAX CHANGE +	$232305	$6	$23	$6	$49	$439	$540	$1417	$412	$63	$132424
TAX CHANGE -	$232285-	$126-	$165-	$301-	$812-	$42-	$147-	$995-	$61-	$14-	$1808-
NET % CHANGE	7.00	-9.00	-13.00	-21.00	-11.00	14.00	5.00	2.00	39.00	21.00	48.00
TC (INIT) +	$75883	$31	$76	$179	$268	$12	$56	$404	$42	$1	$128
TC (INIT) -	$75866-	$6-	$15-	$3-	$38-	$301-	$380-	$893-	$338-	$33-	$9684-
NET % CHANGE	2.00	2.00	4.00	19.00	5.00	-3.00	-3.00	-2.00	-19.00	-10.00	-2.00

MASSACHUSETTS PROPERTY TAX SUMMARY: 1976 BASE DATA — PAGE NO. 12 — PREPARED BY: TAX POLICY STUDY GROUP
ALL CITIES AND TOWNS (INFLATED) — CRAYZYZL/SK — DATE: 78/09/22

CITY OR TOWN: STATE TOTALS — 1976 LEVY: $2,960,158,000 — AS PERCENT OF INCOME: 6.63 — PER CAPITA INCOME: $5,945

CLASSIFICATION SUMMARY

CLASS. SCHEME	PROPERTY CLASSES	EQUALIZED VALUE	TAL EXEMPTIONS	A.V. ADJUSTED CLASS & EXEMPT	EQUALIZED CLASS TAX RATE	% ASSESS. AT OVERALL RATE
PLAN R2 INITIAL	R1,R2,R3,R4	$55,060,210,000	$6,583,165,000	$15,440,918,000	$25.90	28.04
	RC	$1,151,886,000	$0	$518,349,000	$41.57	44.99
	C	$8,755,384,000	$0	$4,377,692,000	$46.19	50.00
	I	$4,501,370,000	$0	$2,475,753,500	$50.81	54.99
	AH	$66,502,000	$0	$66,502,000	$92.38	100.00
	L	$3,882,336,000	$0	$1,109,031,000	$23.09	25.00
	P	$4,038,939,000	$0	$4,038,939,000	$92.38	100.00
PLAN R2 EQUIL.	R1,R2,R3,R4	$56,649,284,000	$6,503,165,000	$16,156,546,000	$25.49	28.41
	RC	$1,092,658,000	$0	$491,696,000	$40.36	44.99
	C	$8,539,726,000	$0	$4,269,863,000	$44.84	50.00
	I	$4,456,809,000	$0	$2,451,245,000	$49.33	54.99
	AH	$55,606,000	$0	$55,606,000	$89.69	100.00
	L	$3,726,365,000	$0	$1,125,409,000	$22.42	25.00
	P	$4,038,939,000	$0	$4,038,939,000	$89.69	100.00

TAX BILL SUMMARY: ALL $ FIGURES X $1000.

SUMMARY	TAX RATE & SHIFTS	1 FAMILY R1	2 FAMILY R2	3 FAMILY R3	APARTMENTS R4	RES./COMM. RC	COMMERCIAL C	INDUSTRIAL I	AGR./HOR. AH	LAND L	PERSONAL P
# PARCELS	1799153	1068261	140759	62575	39036	17920	64873	12691	3725	363311	0
AV/EV RATIO	46.00	47.00	36.00	35.00	48.00	47.00	54.00	60.00	89.00	41.00	68.00
AV	$17668239	$20916548	$1910340	$1017405	$1729522	$597275	$4755978	$2720971	$59267	$1015497	$2751396
EV	$37456625	$44392125	$5252791	$1760078	$3655214	$1151885	$8755383	$4501369	$66501	$3884335	$4038939
TAXES	$78.00	$1336138	$199386	$85535	$188980	$50160	$491652	$249040	$3296	$86392	$269544
100% TAXES	$39.00	$1522147	$243003	$96316	$173944	$52214	$404871	$181145	$1995	$124930	$157545
TAX CHANGE +	$296538	$167005	$44593	$14933	$3142	$6976	$654	$130	$0	$39549	$2
TAX CHANGE -	$296561-	$996-	$977-	$1051-	$16176-	$4930-	$87436-	$66025-	$1302-	$1061-	$112000-
NET % CHANGE	10.00	13.00	21.00	14.00	-7.00	5.00	-17.00	-27.00	-39.00	45.00	-41.00
EXEMPTIONS	$6583165	$5341305	$733795	$312875	$195190	$0	$0	$0	$0	$0	$0
PLAN R2 INITIAL											
ADJUSTED AV	$28107184	$12415545	$1307321	$391196	$1266895	$518348	$4377691	$2475753	$66501	$1109031	$4038939
NEW TAXES	$105.00	$1181299	$170543	$56065	$196602	$62456	$538511	$260603	$5711	$117.16	$409716
TAX CHANGE +	$306482	$13968	$5626	$645	$3005	$13204	$59597	$29003	$2797	$30951	$142100
TAX CHANGE -	$306480-	$168306-	$34469-	$30095-	$34064-	$923-	$12739-	$17440-	$384-	$6126-	$1928-
NET % CHANGE	10.00	-11.00	-14.00	-34.00	-16.00	24.00	9.00	4.00	73.00	35.00	52.00
TC (100%) +	$491792	$35	$219	$77	$4649	$10251	$133796	$79912	$3715	$6564	$252170
TC (100%) -	$491767-	$340082-	$72079-	$42208-	$20591-	$15-	$156-	$453-	$0	$14079-	$0
NET % CHANGE	10.00	-22.00	-29.00	-42.00	-9.00	19.00	33.00	43.00	186.00	-6.00	160.00
PLAN R2 EQUILIBRIUM											
ADJUSTED AV	$28589305	$12906739	$1447442	$462176	$1340189	$491696	$4269862	$2451244	$55605	$1125409	$4038939
NEW TAXES	$103.00	$1208454	$178958	$67070	$161994	$57276	$517537	$254389	$4605	$105110	$400160
TAX CHANGE +	$232305	$6921	$3483	$491	$11923	$7809	$39451	$11969	$1535	$242?5	$132424
TAX CHANGE -	$232285-	$134604-	$24511-	$18174-	$23969-	$762-	$19567-	$12640-	$221-	$5277-	$1808-
NET % CHANGE	7.00	-9.00	-11.00	-21.00	-11.00	14.00	5.00	2.00	39.00	21.00	48.00
TC (INIT) +	$75683	$33862	$10340	$11290	$10481	$221	$13681	$5131	$156	$2629	$128
TC (INIT) -	$306446-	$137?2?-	$34?4?-	$29?6?-	$34?4?-	$?-	$?-	$?-	$?-	$?-	$9684-

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